US Chartbook

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Open source notes on the United States economy

Warning

Early stage draft!
This early draft contains many errors!

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About the Chartbook

I like a place with a lot of items on a menu. Because you know they do them all beautifully.
Will Ferrell

This chartbook offers a big menu of US economic and social indicators. To keep the data fresh and cover a wide-variety of topics, shortcuts are made on the back end. Most of the text is generated by simple scripts. Likewise, the charts are standardized with each other in ways that reduce how well they represent a topic.

As a result of these shortcuts, it is unlikely that you will be completely satisfied with the content of the chartbook. To sweeten the deal, I've added links to the data and source code. Hopefully the end result can inspire and facilitate further exploration of topics of interest.

Version 0.1 release planned for Spring 2023

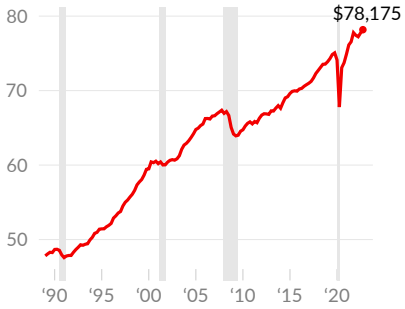
Contents

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 $26,132 billion in the fourth quarter of 2022, compared to an inflation-adjusted equivalent of $24,861 billion in 2019 Q4, and $11,295 billion in the first quarter of 1989.

The US population is growing by about four-tenths of a percent per year. GDP per capita (see —), adjusted for inflation to 2022 Q4 dollars, had increased to $75,063 in 2019 Q4 from $46,255 in 1989 Q1, and is currently $78,175, as of the fourth quarter of 2022.

GDP per capita
in thousands of 2022 Q4 dollars

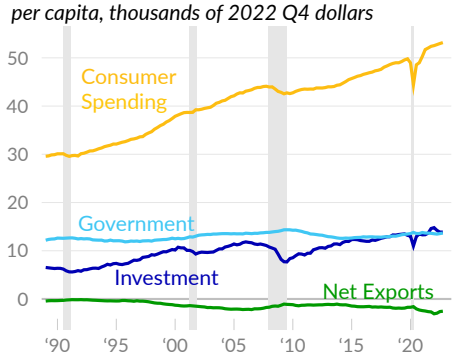


Source: Bureau of Economic Analysis

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 2022 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 $53,163 per person in 2022 Q4, a price-adjusted increase of $23,568 since 1989. Gross private domestic investment (see —) is equivalent to $13,882 per person in 2022 Q4, and government spending and investment (see —) totals $13,665 per person. Net exports equivalent to $2,534 per person are subtracted to reflect only domestic production (see —).

Expenditure Types
per capita, annualized, 2022 Q4 dollars

	2022 Q4	2019 Q4	2000 Q1	1989 Q1
— Gross Domestic Product	$78,175	75,063	59,493	47,809
— Consumer Spending	53,163	49,791	37,880	29,595
— Gross Private Domestic Investment	13,882	13,198	10,154	6,535
— Government Spending and Investment	13,665	13,467	12,480	12,188
— Net Exports	-2,534	-1,729	-1,295	-429
Exports	8,998	8,999	5,494	2,869
Less: Imports	11,532	10,352	6,671	3,122

Source: Bureau of Economic Analysis

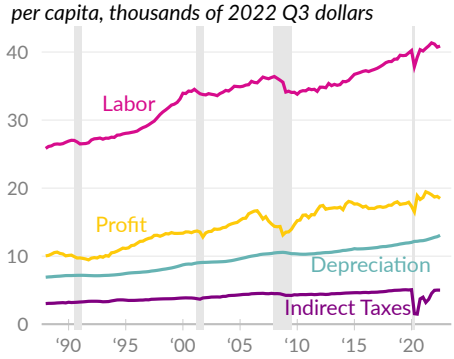
The less-discussed **income approach** calculates economic activity from production income and certain production expenses. Production income is the payout to labor and capital. Labor income is referred to as "compensation of employees, paid" in the national accounts and includes wages and salaries as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

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. Government subsidies, which are income payments for production that did not occur, 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 depreciation expense is recorded as "consumption of fixed capital" in the national accounts.

The Bureau of Economic Analysis report seasonally-adjusted and annualized Gross Domestic Income (GDI) of $25,845 billion in 2022 Q3, compared to an inflation-adjusted equivalent of $24,767 billion in 2019 Q4. Real GDI per capita was $77,426 in 2022 Q3 and $74,778 in 2019 Q4.

Income Types

per capita, thousands of 2022 Q3 dollars



Source: Bureau of Economic Analysis

Gross labor income per capita is equivalent to $40,880 in 2022 Q3 (see —) and $39,873 in 2019 Q4, on an annualized, seasonally-adjusted, and inflation-adjusted basis. Profits per person total $18,485 in 2022 Q3 (see —) and $17,924 in 2019 Q4, following the same adjustments. Indirect taxes less subsidies per capita total $5,005 in 2022 Q3 (see —) and $5,029 in 2019 Q4. Lastly, depreciation per capita is $13,056 in 2022 Q3 (see —) and $11,952 in 2019 Q4.

Income Types

per capita, annualized, 2022 Q3 dollars

	2022 Q3	2019 Q4	2000 Q1	1989 Q1
Gross Domestic Income	$77,426	74,778	59,894	47,247
— Labor	40,880	39,873	33,945	26,490
Wages and Salaries	33,731	32,525	28,061	21,861
Supplements	7,149	7,348	5,883	4,629
— Profit	18,485	17,924	13,374	10,596
— Indirect Taxes	5,005	5,029	3,854	3,122
Taxes on Production and Imports	5,348	5,313	4,119	3,363
Less: Subsidies	343	283	266	240
— Depreciation	13,056	11,952	8,721	7,039

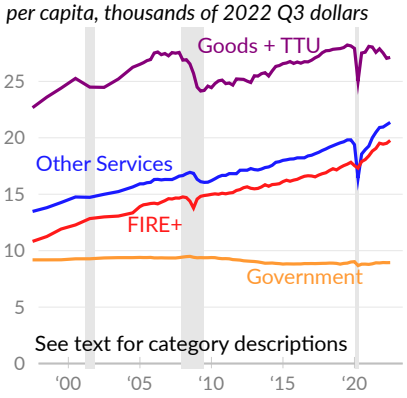
Source: Bureau of Economic Analysis

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 (1.2 percent of GDP in 2022 Q3); mining (2.0 percent of GDP); construction (3.9 percent); and manufacturing (10.9 percent), with trade, transportation, and utilities (TTU, combined 17.1 percent of GDP). The second category is finance, insurance, and real estate (FIRE, 20.1 percent of GDP in 2022 Q3) combined with the information industry (5.5 percent of GDP), labeled as FIRE+.

The remaining private services-providing industries include: professional and business services (13.1 percent of GDP in 2022 Q3); education, health care, and social services (8.4 percent of GDP); and arts, entertainment, and recreation (4.2 percent). Separately, public-sector value added in production, at the federal, state, and local levels, is captured by the government category (11.6 percent of GDP).

Production Types
per capita, thousands of 2022 Q3 dollars



Source: Bureau of Economic Analysis

In 2022 Q3, private goods-producing industries and the trade, transportation, and utilities industries add $27,123 per person in domestic production, on an annualized basis, compared to $28,144 in 2019 Q4 (see —). Private finance, insurance, real estate, and information industry services add $19,762 in combined value, per capita in 2022 Q3 and $17,833 in 2019 Q4 (see —).

All other private services-producing industries combined value added per person is $21,365 in 2022 Q3 and $19,819 in 2019 Q4 (see —). Government value added is $8,943 per person in 2022 Q3 and $8,996 in 2019 Q4 (see —).

Production Types
per capita, annualized, 2022 Q3 dollars

	2022 Q3	2022 Q2	2019 Q4	2005 Q1	1997 (A)
— Goods and TTU	$27,123	27,043	28,144	26,511	22,672
Manufacturing	8,429	8,427	8,430	7,866	6,483
Construction	3,028	3,183	3,573	4,737	4,449
Retail Trade	4,436	4,367	4,668	4,460	3,512
— FIRE+	19,762	19,515	17,833	13,906	10,823
Finance & Insurance	5,999	6,046	5,601	4,971	3,680
Information	4,251	4,088	3,372	1,776	1,118
— Other Services	21,365	21,162	19,819	15,922	13,477
Education & Healthcare	6,467	6,388	6,185	4,760	4,091
Professional & Business	10,075	9,947	8,583	6,258	5,079
— Government	8,943	8,937	8,996	9,401	9,187

Source: Bureau of Economic Analysis

Household Inputs to Production

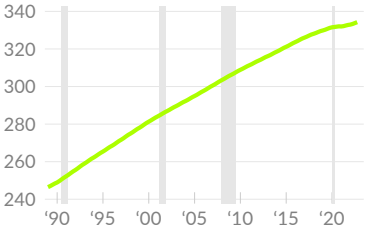
It's useful to consider household inputs when analyzing economic output. For example, is the population growing? Are more people working? Are people working more hours? Is the economy more productive in its use of labor? These questions all add important context to discussion of economic activity.

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, a total population growth rate of around 30 percent. For each person to maintain the same standard of living, GDP would need to increase by the same amount.

GDP is produced by workers. The employment rate (see —) measures the share of the population that is working, and is affected by existing economic conditions. The rate nears 50 percent during the peak of economic expansions and falls during recessions. Demographics also affect this measure. Over the past 30 years, the aging of the population has gradually reduced the employment rate.

A third measure of household inputs to production is the amount people work. As with the employment rate, hours of work are influenced by existing economic conditions. Workers' average weekly hours of work (see —) increase during an economic expansion, as more work is available. Average hours fall during a recession, when demand for goods and services is relatively low.

Population
millions of people

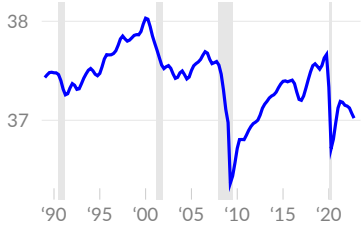


Source: BEA

Employment Rate
share of population, percent

Source: CPS Microdata

Hours Worked
average hours per worker per week



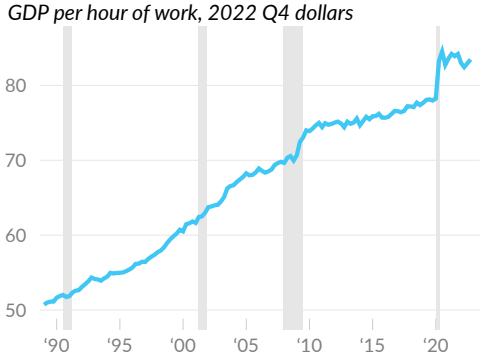
Source: CPS Microdata

The **productivity of labor** is a key determinant in GDP, and can be measured as the GDP per hour of work (see —). The total hours of work in a quarter or year can be estimated by multiplying the population, employment rate, and average hours worked. Over the past 30 years, this measure of labor productivity has increased substantially.

In 2022 Q4, real GDP was equivalent to roughly $83.47 per hour of work, compared to $82.94 in 2022 Q3, $77.98 in 2019 Q4, $75.69 in 2015 Q4, and $50.71 in the first quarter of 1989.

Comparing the latest data to the pre-COVID data covering 2019 Q4, annualized real GDP is $26,132 billion in the latest data and $24,861 billion in 2019 Q4. Aggregate hours worked total 313 billion in the latest quarter and 319 billion in 2019 Q4.

Labor productivity
GDP per hour of work, 2022 Q4 dollars



Source: Author's Calculations

Economic Growth

Economists are concerned with changes in economic activity, or economic growth. This subsection discusses economic growth, recessions, and their contributors.

Real GDP Growth

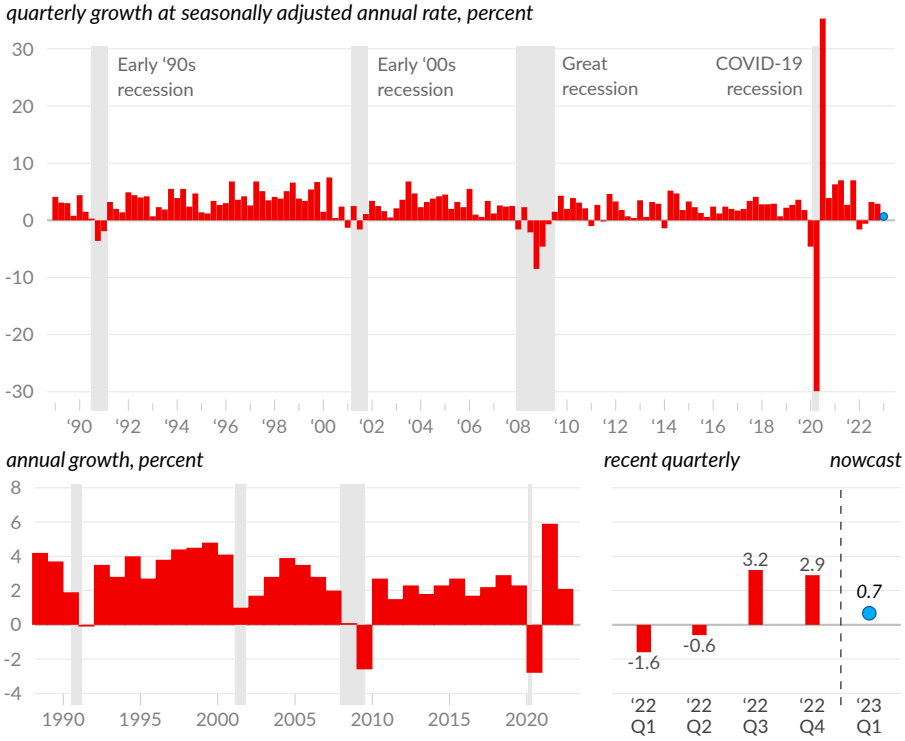
Real GDP growth measures changes in economic activity. As seen in the previous subsection, real GDP has increased steadily over the long-term. Since 1989, growth averaged 2.5 percent per year (see ■). Growth rates were relatively high during the mid- to late-1990s, averaging 3.8 percent from 1993 to 2000.

In the 2000s, the housing bubble boosted GDP but then collapsed, leading to average growth of only 1.8 percent from 2001 to 2013. Growth was slightly stronger from 2014 to 2019, averaging 2.4 percent per year.

In 2020, COVID-19 caused an economic shutdown, followed by monetary and fiscal stimulus, resulting in large swings in GDP. Real GDP decreased 29.9 percent in Q2, and increased by 35.3 percent in Q3, by far the largest changes in recent history. Since 2020, economic growth averaged 2.6 percent.

Real Gross Domestic Product Growth

quarterly growth at seasonally adjusted annual rate, percent



Source: Bureau of Economic Analysis, Federal Reserve Bank of Atlanta

The bottom-left chart shows annual growth, to make trends more visible. The bottom-right chart shows the most-recent four quarters and the estimate for the current quarter. In the **latest data**, covering the fourth quarter of 2022, real GDP increased at an annual rate of 2.9 percent, compared to an increase of 3.2 percent in Q3, and a decrease of 0.6 percent in Q2.

The Federal Reserve Bank of Atlanta uses available economic indicators to **nowcast** the current growth rate. The latest nowcast for 2023 Q1 is 0.7 percent, as of January 27, 2023 (see ●).

Recessions

The long-term pattern in economic growth is often described as the business cycle. Typically, periods of economic growth lasting 7–12 years are interrupted by an **economic recession**, a period where economic activity decreases. The National Bureau of Economic Research (NBER) identifies four recessions since 1989.

During the early 1990s recession, output contracted for eight months and unemployment was higher than its pre-recession average for 63 months. The drop in output was smaller during the early 2000s recession, but unemployment rates took almost 16 years to recover.

The 2008–2009 great recession, caused by the collapse of a housing bubble, was very severe. The recession lasted 18 months, with higher rates of unemployment lasting 89 months. The most-recent COVID-19 recession was extremely severe and also extremely short-lived, lasting only two months, but with output reduced 9.6 percent.

US Recessions since 1989

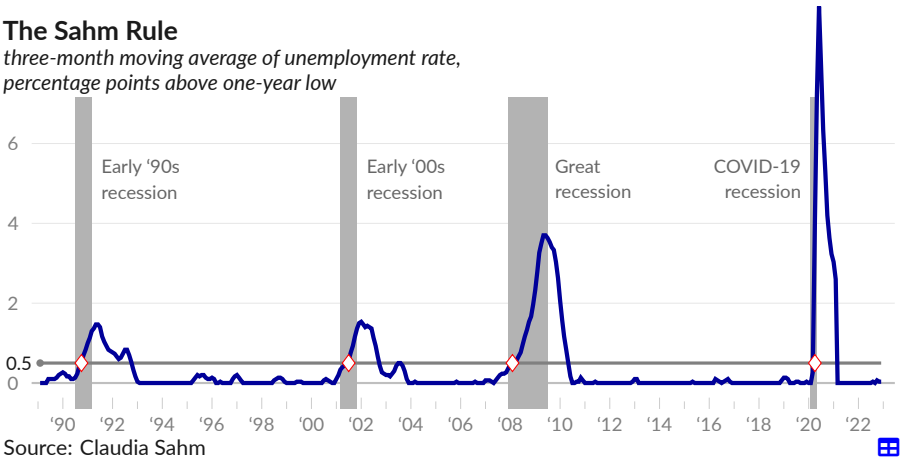
	Start Month	End Month	Recession Duration, Months	GDP Percent Change	Unemp. Rate Change*	Unemp. Rate Recovery, Months**
Early '90s Recession	Aug 1990	Mar 1991	8	-1.4	+2.4	63
Early '00s Recession	Apr 2001	Nov 2001	8	-0.1	+2.1	191
Great Recession	Jan 2008	Jun 2009	18	-3.8	+5.2	89
COVID-19 Recession	Mar 2020	Apr 2020	2	-9.6	+10.8	20

Sources: NBER, BEA, BLS
*Percentage point change from average unemployment rate during three years prior to recession to peak unemployment rate. **Months from recession start until unemployment rate returns to pre-recession three-year average.

The most-reliable indication that the US has entered a recession (see ■) was identified by Claudia Sahm, and is called the **Sahm rule**. The Sahm rule indicates the start of a recession (see ◊) when the three-month moving average unemployment rate rises by half a percentage point or more above its low during the previous twelve months (see —). In effect, the Sahm rule identifies increases in unemployment that are significant enough to cause or indicate a recession.

The Sahm Rule

three-month moving average of unemployment rate, percentage points above one-year low



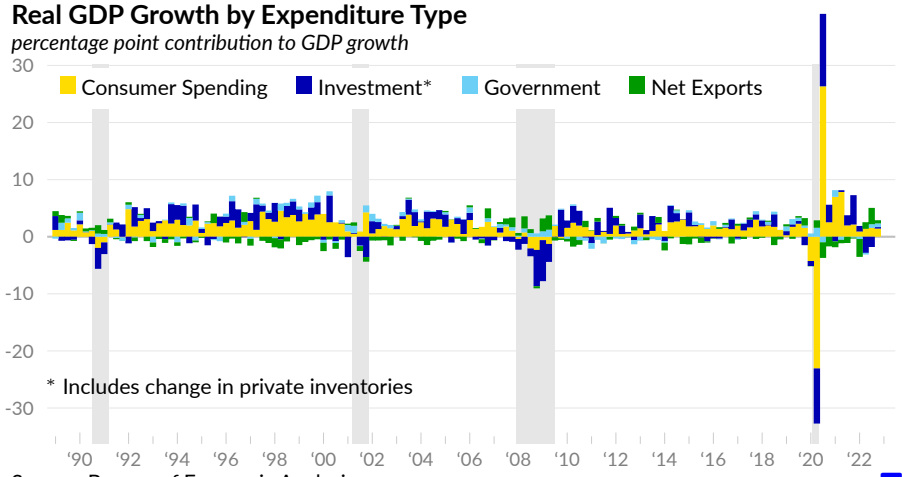
Source: Claudia Sahm

Components of Growth

The **expenditure approach** also gives insight into the sources of changes in overall economic activity. In the fourth quarter of 2022, consumer spending (see) contributed 1.42 percentage points to overall real GDP growth. Private domestic investment (see) contributed 0.27 percentage point to real GDP growth, government spending and investment (see) contributed 0.64 percentage point, and net exports (see) contributed 0.56 percentage point.

Real GDP Growth by Expenditure Type

percentage point contribution to GDP growth



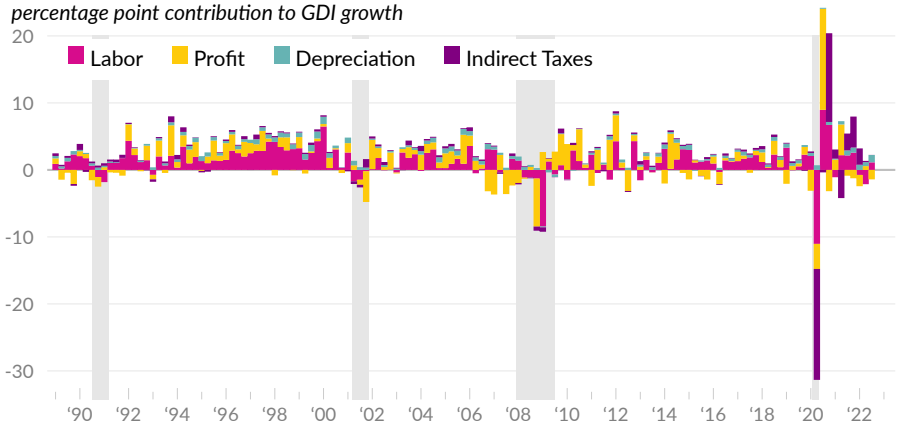
Source: Bureau of Economic Analysis

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 2022, gross domestic income increased at an annual rate of 0.8 percent, following a decrease of 0.8 percent in 2022 Q2 and an increase of 0.8 percent in 2022 Q1. In the latest quarter, labor income contributed 1.13 percentage points to overall growth, following a a subtraction of 2.13 percentage points in 2022 Q2. Profit income subtracted 1.41 percentage points in the third quarter of 2022 and contributed 0.57 percentage point in 2022 Q2. Changes in indirect tax revenue and surpluses contributed 0.01 percentage point to aggregate income growth in the latest quarter and contributed 0.18 percentage point in 2022 Q2.

Real Gross Domestic Income Growth

percentage point contribution to GDI growth



Source: Bureau of Economic Analysis

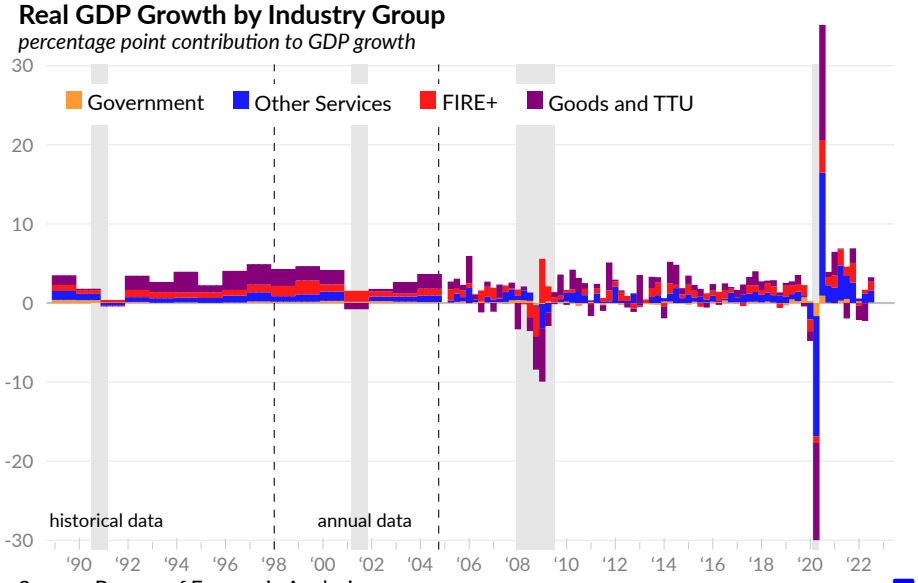
The **production approach** calculates GDP as the sum of value added–gross output minus intermediate inputs–in each sector. The broad groupings discussed above are used to identify contributions from: goods-producing sectors combined with trade, transportation, and utilities (see ■), finance, insurance,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

In 2022 Q3, the combined contribution to GDP growth from private goods-producing industries and trade, transportation, and utilities is 0.6 percentage points, following a subtraction of 2.2 percentage points in 2022 Q2, and compared to a subtraction of 0.4 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 1.1 percentage points in 2022 Q3, contributed 0.5 percentage point in 2022 Q2, and contributed 1.4 percentage points in 2019 Q4.

Other private services-providing industries, which are wide-ranging and described above, contributed 1.5 percentage points to real GDP growth in 2022 Q3, following a contribution of 1.2 percentage points in 2022 Q2, and compared to a contribution of 0.2 percentage point in 2019 Q4. Combined federal, state, and local government did not contribute in 2022 Q3, did not contribute the prior quarter, and contributed 0.7 percentage point in 2019 Q4, prior to the pandemic.

Real GDP Growth by Industry Group

percentage point contribution to GDP growth



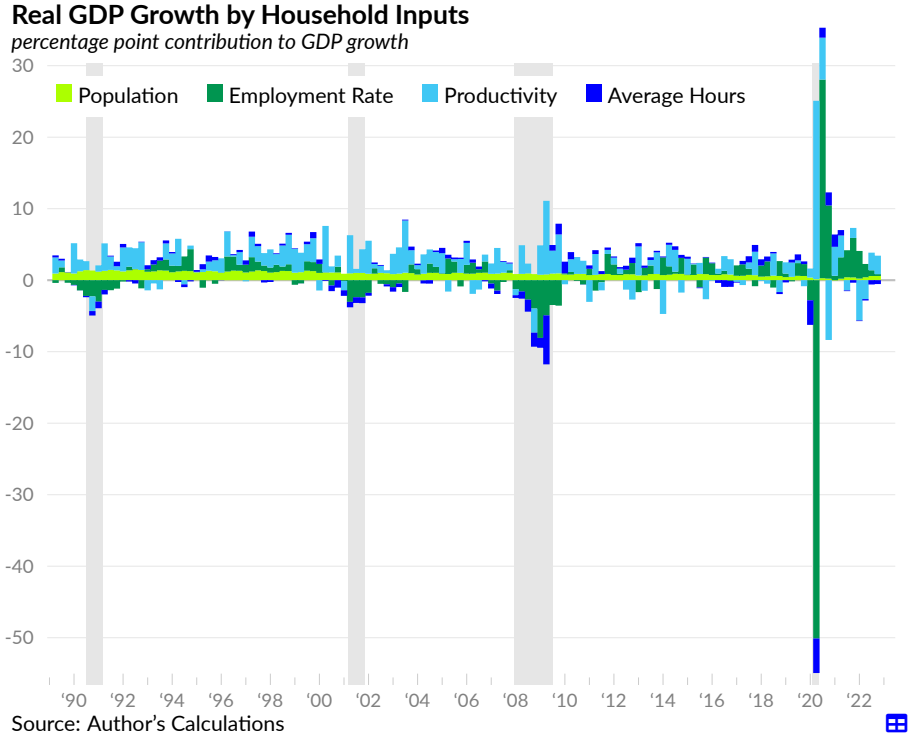
Source: Bureau of Economic Analysis

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 2022 Q4, population growth contributed 0.59 percentage point to annualized GDP growth, and, for comparison, added 0.59 percentage point in 2019 Q4. Changes in the employed share of the population contributed 0.26 percentage point in the latest quarter, and added 1.66 percentage points in the fourth quarter of 2019. Changes in average hours worked subtracted 0.54 percentage point from GDP growth in the latest quarter and added 0.38 percentage point in 2019 Q4. Lastly, productivity contributed 2.58 percentage points to GDP growth in 2022 Q4, compared to a reduction of 0.84 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

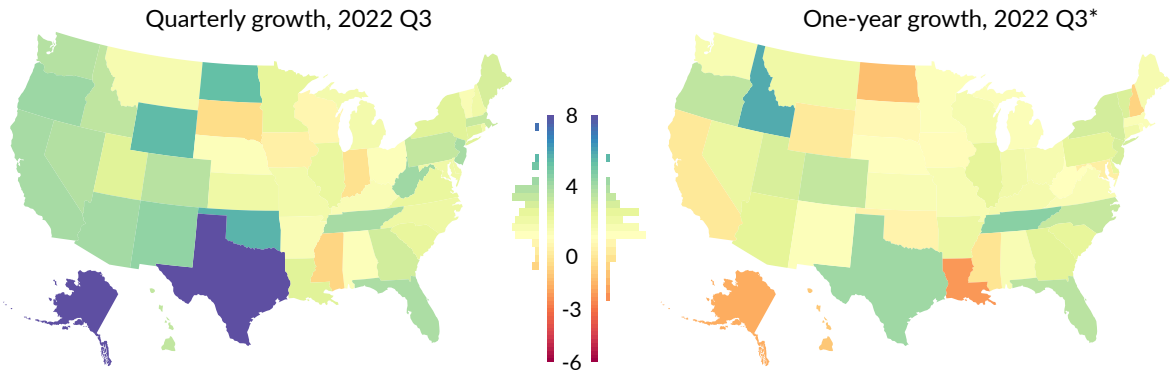
annualized percentage point contribution to real GDP/GDI growth — *moving averages*

	2022 Q4	2022 Q3	2022 Q2	2022 Q1	2021 Q4	3-year	10-year	30-year
Gross Domestic Product	2.9	3.2	-0.6	-1.6	7.0	2.6	2.4	2.6
Consumer Spending	1.42	1.54	1.38	0.91	2.14	2.10	1.82	1.86
Durable Goods	0.04	-0.07	-0.24	0.64	0.44	0.68	0.52	0.49
Non-Durable Goods	0.22	-0.01	-0.37	-0.66	0.12	0.51	0.43	0.37
Services	1.16	1.63	1.99	0.93	1.58	0.91	0.88	1.01
Gross Investment	0.27	-1.80	-2.83	0.98	5.14	0.52	0.66	0.68
Non-Residential	0.09	0.80	0.01	0.98	0.17	0.27	0.47	0.57
Residential	-1.29	-1.42	-0.93	-0.15	-0.05	-0.07	0.09	0.04
Change in Inventories	1.46	-1.19	-1.91	0.15	5.01	0.32	0.10	0.07
Government	0.64	0.65	-0.29	-0.40	-0.16	0.20	0.17	0.22
Federal	0.39	0.24	-0.22	-0.36	0.01	0.16	0.04	0.08
State and Local	0.25	0.41	-0.06	-0.04	-0.17	0.05	0.13	0.14
Net Exports	0.56	2.86	1.16	-3.13	-0.16	-0.25	-0.24	-0.21
Exports	-0.15	1.65	1.51	-0.53	2.37	0.16	0.23	0.45
Imports	0.71	1.21	-0.35	-2.60	-2.53	-0.41	-0.47	-0.66
Goods and TTU	–	0.56	-2.24	-1.79	1.84	0.14	0.58	0.86
Manufacturing	–	0.06	-0.97	-0.34	1.47	0.13	0.19	0.37
Construction	–	-0.77	-0.84	-0.06	-0.57	-0.17	0.01	-0.01
Retail Trade	–	0.39	0.08	-0.93	0.43	0.02	0.12	0.18
FIRE+	–	1.10	0.47	-0.36	2.48	1.05	0.74	0.78
Other Services	–	1.51	1.21	0.35	2.59	1.29	0.93	0.75
Education & Healthcare	–	0.45	0.23	0.26	0.47	0.29	0.23	0.21
Professional & Business	–	0.72	0.54	0.43	1.68	0.81	0.57	0.43
Information	–	0.88	0.08	-0.13	0.86	0.48	0.39	0.29
Government	–	0.08	-0.03	0.21	-0.02	0.11	0.06	0.09
Population	0.59	0.59	0.41	0.23	0.39	0.34	0.59	0.88
Employment Rate	0.26	0.80	1.86	3.86	5.52	0.50	0.69	0.20
Average Hours	-0.54	-0.60	-0.20	-0.09	-0.35	-0.31	0.06	-0.00
Productivity	2.58	2.46	-2.64	-5.63	1.40	2.05	1.07	1.48
Gross Domestic Income	–	0.8	-0.8	0.8	6.7	2.5	2.2	2.6
Labor	–	1.13	-2.13	-0.75	2.58	1.05	1.24	1.27
Profit	–	-1.41	0.57	-1.68	-1.25	0.63	0.36	0.75
Depreciation	–	1.10	0.59	0.77	0.76	0.55	0.44	0.44
Indirect Taxes	–	0.01	0.18	2.44	4.62	0.27	0.21	0.18

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 2022 Q3, no states had real GDP growth of more than ten percent, one state (Idaho) had real GDP growth between five and ten percent, 43 states had less than five percent GDP growth, and seven states had negative GDP growth.

Real GDP Growth by State

quarterly growth at seasonally adjusted annualized rate | *total growth, 2022 Q3*

	2022 Q3	'22 Q2	'22 Q1	'21 Q4	'21 Q3	1-year*	3-year	10-year
United States	3.2	-0.6	-1.6	7.0	2.7	1.9	5.8	23.4
Pacific	3.9	-0.4	-8.3	6.8	4.2	0.3	6.6	36.7
Washington	3.5	0.6	-4.8	7.0	-0.3	1.5	10.5	45.6
California	3.8	-0.5	-9.5	6.8	5.2	-0.0	6.4	37.8
Oregon	4.1	-1.6	-0.4	11.5	1.2	3.3	7.7	33.8
Hawaii	3.3	0.6	-4.5	-3.5	11.3	-1.1	-4.1	5.2
Alaska	8.7	-0.9	-15.3	1.6	1.8	-1.8	-5.8	-15.6
Mountain	3.5	-1.5	-0.5	9.6	4.0	2.7	8.7	31.7
Utah	2.5	-1.1	-0.6	10.6	2.4	2.7	13.0	48.4
Idaho	3.3	-0.8	3.5	17.8	3.4	5.7	13.9	44.1
Colorado	3.5	-2.0	2.9	8.8	2.8	3.2	8.6	39.5
Arizona	3.9	-1.9	-2.2	10.3	4.4	2.4	10.5	31.2
Nevada	3.6	1.0	-3.3	7.4	9.8	2.1	6.3	27.9
Montana	1.5	-1.1	-2.0	9.3	1.5	1.8	6.9	18.0
New Mexico	4.3	-2.3	-5.1	8.6	4.2	1.2	0.6	6.3
Wyoming	5.3	-4.8	-1.4	1.2	-0.1	0.0	-4.5	-7.9
South Atlantic	2.7	0.0	-0.8	7.8	3.5	2.4	7.4	25.5
Florida	3.8	1.6	-1.5	10.4	5.9	3.5	11.8	38.5
Georgia	2.9	-0.7	1.7	5.9	1.3	2.4	6.3	32.1
South Carolina	2.3	-0.5	2.0	5.5	0.9	2.3	7.2	27.5

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	2022 Q3	'22 Q2	'22 Q1	'21 Q4	'21 Q3	1-year*	3-year	10-year
continued from previous page . . .								
North Carolina	1.9	-0.7	1.6	10.1	2.9	3.2	9.7	26.1
Virginia	2.2	-0.9	-3.3	7.7	3.8	1.3	5.7	15.1
District of Columbia	1.0	-0.9	1.0	2.0	5.5	0.8	4.0	14.8
Maryland	1.8	-0.9	-4.1	4.4	3.0	0.3	0.3	11.4
Delaware	1.9	1.2	-1.7	7.4	1.8	2.1	3.1	4.8
West Virginia	4.1	1.4	-5.6	4.5	-0.2	1.0	-1.0	0.9
West South Central	7.1	0.9	-0.7	5.1	0.6	3.1	4.7	25.0
Texas	8.2	1.8	0.5	5.7	1.4	4.0	7.2	33.5
Arkansas	1.3	-3.0	6.5	3.8	2.2	2.1	8.5	15.8
Oklahoma	5.5	-1.6	-6.7	5.3	-6.2	0.5	-4.0	9.3
Louisiana	2.5	-3.0	-8.9	0.8	-1.4	-2.2	-8.3	-9.3
East South Central	2.1	-0.6	2.1	6.7	1.7	2.5	7.5	16.9
Tennessee	3.9	0.3	3.7	10.3	3.9	4.5	11.7	28.1
Kentucky	1.3	-1.8	2.1	5.0	1.0	1.6	4.6	12.3
Alabama	1.2	-0.9	-0.4	5.8	0.3	1.4	4.9	11.8
Mississippi	-0.7	-1.1	1.3	-0.2	-1.4	-0.2	4.1	2.9
New England	2.7	-2.8	-0.6	6.1	3.6	1.3	4.9	16.0
Massachusetts	3.2	-2.6	-0.9	5.8	5.0	1.3	6.1	22.6
New Hampshire	1.8	-2.5	-14.1	13.8	2.1	-0.7	8.1	21.6
Maine	2.8	-1.2	-0.5	5.1	3.2	1.5	9.9	19.4
Rhode Island	1.8	0.6	-4.6	7.4	0.1	1.2	4.0	7.3
Vermont	1.3	-0.2	2.6	7.1	2.4	2.7	5.6	5.9
Connecticut	2.5	-4.7	5.5	4.3	2.2	1.8	0.3	4.6
Middle Atlantic	3.0	-0.0	-0.2	8.3	4.1	2.7	3.7	15.6
New York	2.5	0.7	-0.5	8.8	5.8	2.8	4.3	18.5
New Jersey	3.9	-1.0	1.7	6.7	3.2	2.8	4.6	13.0
Pennsylvania	3.2	-0.9	-1.1	8.4	1.3	2.3	1.9	11.9
West North Central	1.7	-1.6	1.6	2.6	-2.7	1.1	3.4	13.6
Nebraska	1.2	-1.7	5.0	-0.0	-0.5	1.1	5.4	19.5
Minnesota	2.3	-1.3	-0.7	4.5	-2.0	1.2	3.4	17.7
Kansas	1.9	-2.5	2.7	3.7	0.3	1.4	3.1	14.8
South Dakota	-0.5	-1.7	1.7	3.2	-1.2	0.7	7.8	11.9
Iowa	0.3	-0.8	2.5	1.6	-14.4	0.9	3.2	10.6
Missouri	1.7	-2.0	3.3	2.9	0.4	1.4	3.8	10.4
North Dakota	5.2	-0.7	-5.3	-4.2	1.8	-1.3	-5.4	2.7
East North Central	1.3	-2.0	1.3	6.6	0.7	1.7	4.0	13.6
Ohio	1.2	-1.1	-1.7	7.9	1.4	1.5	4.6	16.7
Indiana	-0.3	-3.3	4.0	7.1	-0.7	1.8	4.3	16.4
Michigan	1.7	-1.7	2.5	2.4	-0.3	1.2	5.3	16.1
Wisconsin	0.6	-1.9	0.3	7.6	1.3	1.6	2.6	11.8
Illinois	2.2	-2.5	2.4	7.5	1.2	2.3	3.1	9.4

Source: Bureau of Economic Analysis

Financial Accounts

Economists are concerned with the level of assets and liabilities, at a given point in time, and by related transactions, such as the lending and borrowing, and saving and investment. Data on financing and investing activities provide insight into current economic conditions as well as the future economic outlook. This section provides a high-level overview of the US **financial accounts** and related measures, and covers liabilities, sectoral balances, wealth, and investment.

Liabilities

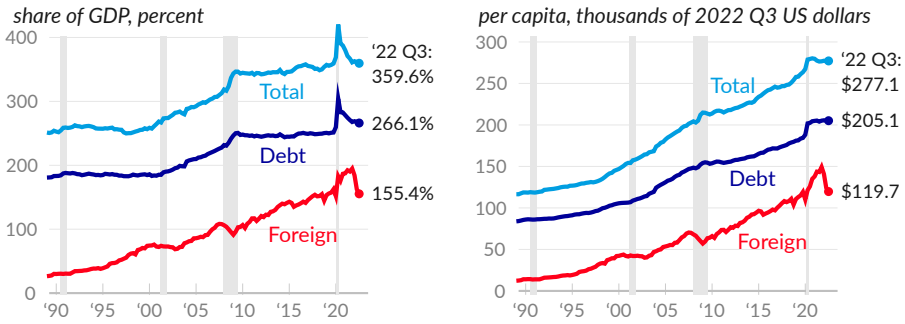
The Federal Reserve US Financial Accounts cover **liabilities**, both in levels and transactions. Using these accounts, we can summarize US financial obligations to others in a few different ways.

The first and most-common approach to analyzing US liabilities looks at **debt**, which includes loans and debt securities, such as bonds. In this approach, total debt is the sum of debt held by each nonfinancial sector of the domestic economy: households, businesses, and the government. The combined debt of US nonfinancial sectors is $68.5 trillion in the third quarter of 2022, equivalent to 266.1 percent of GDP, or $205,103 per capita.

The second approach is **total liabilities**, which include debt and all other financial obligations. Other financial obligations include accounts payable, taxes payable, pension obligations, intercompany debt, and other miscellaneous liabilities. Total liabilities of nonfinancial sectors sum to $92.5 trillion in 2022 Q3, or 359.6 percent of GDP.

The last approach looks at **foreign financial claims** on the US. From a net US wealth perspective, domestic liabilities held by domestic creditors cancel out. It is therefore of interest to look at the portion of domestic liabilities that are to foreign creditors. Foreign financial claims on the US total $40.0 trillion in 2022 Q3, equivalent to 155.4 percent of GDP, or $119,726 per capita.

Liabilities



share of GDP, percent

	2022 Q3	'22 Q2	'21 Q3	'19 Q4	2010	1989
Total Liabilities (–)	359.6	361.5	367.1	359.2	344.0	251.8
Debt (–)	266.1	267.9	270.9	251.3	247.0	181.6
Debt Securities	145.6	146.7	149.6	133.4	114.5	81.6
Loans	119.7	119.8	120.5	117.9	132.0	99.5
Foreign Financial Claims (–)	155.4	162.4	190.3	162.5	107.1	27.8

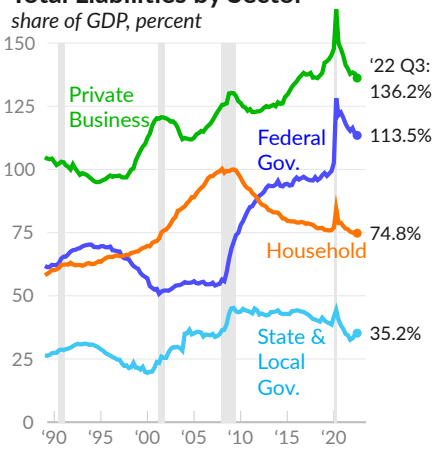
Source: Federal Reserve, Bureau of Economic Analysis
Note: Domestic figures are for nonfinancial sectors and foreign financial claims on the US do not include US claims on the rest of the world.

Liabilities vary **by sector** and vary over time within sectors. Households and nonprofits (see —) have $18.8 trillion in debt in 2022 Q3, equivalent to 73.3 percent of GDP. During the collapse of the housing bubble, in 2010, household and nonprofit debt was equivalent to 92.5 percent of GDP.

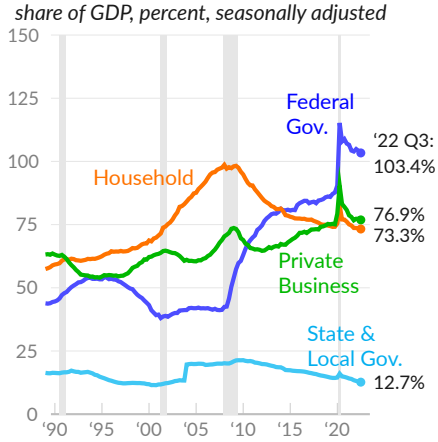
In 2022 Q3, Private nonfinancial businesses (see —), corporate and noncorporate, have total liabilities of $35.0 trillion and debt of $19.8 trillion. In 2022 Q3, nonfinancial business debt is equivalent to 76.9 percent of GDP, in line with the pre-COVID ratio of 74.1 percent. Nonfinancial corporations have $25.2 trillion in total liabilities and $12.8 trillion in debt.

Federal government debt (see —) is equivalent to 103.4 percent of GDP in the latest data and 87.7 percent in 2019 Q4. Federal government debt has increased substantially since the great recession. State and local government debt (see —) is equivalent to 12.7 percent of GDP in 2022 Q3 and 21.1 percent of GDP in 2010. Total liabilities for the sector, which include pensions, are 35.2 percent of GDP in the latest data and 44.2 percent in 2010.

Total Liabilities by Sector
share of GDP, percent



Debt by Sector
share of GDP, percent, seasonally adjusted



Debt by Sector
share of GDP, percent

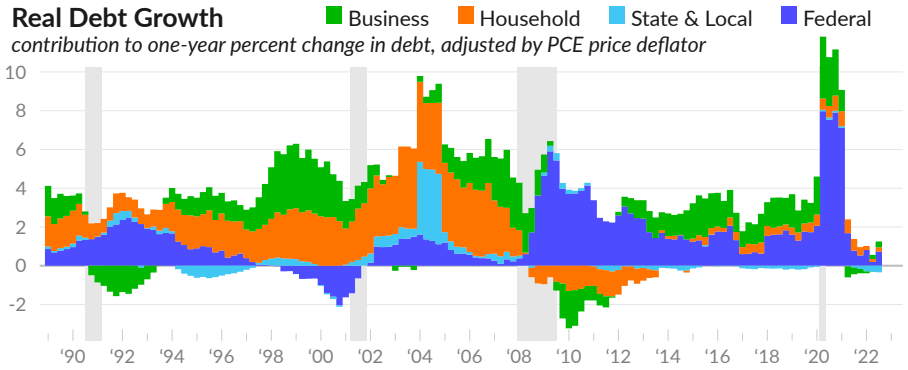
	2022 Q3	'22 Q2	'21 Q3	'19 Q4	2010	1989
Debt of Nonfinancial Sectors	266.1	267.9	270.9	251.3	247.0	181.6
Households & Nonprofits (—)	73.3	73.5	74.7	74.1	92.5	58.1
Home Mortgages	49.0	49.1	49.9	49.5	69.0	39.7
Consumer Credit	18.2	18.2	18.4	19.3	16.8	13.8
Nonfinancial Businesses (—)	76.9	77.3	78.0	75.1	67.3	63.3
Corporate	49.6	49.9	50.2	47.6	40.7	42.3
Debt Securities	29.4	29.9	31.9	30.5	25.9	20.4
Loans	20.0	19.9	18.2	17.1	14.8	22.0
Noncorporate	27.3	27.4	27.8	27.5	26.6	20.9
Commercial Mortgages	8.0	8.1	8.3	8.4	9.6	8.6
Government	116.0	117.1	118.2	102.1	87.3	60.2
State & Local (—)	12.7	12.9	13.9	14.3	21.1	16.3
Federal (—)	103.4	104.2	104.3	87.7	66.2	44.0

Source: Federal Reserve, Bureau of Economic Analysis

Changes in debt levels can highlight economic risks. 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 mortgage debt. More recently, government borrowing increased following the great recession and in response to COVID-19. Since 2019 Q4, real debt increased at an average rate of 4.6 percent, compared to an average increase of 3.8 percent over the past 30 years.

By sector, long-term real debt growth is broad-based, with categories contributing relatively evenly. Over the past three years, the growth is relatively broad-based. The main contribution is an increase in federal government debt. Since 2019 Q4, federal government debt contributed 3.3 percentage points to one-year real debt growth, on average, compared to an average contribution of 1.4 percentage points over the past 30 years. Nonfinancial business debt contributed one percentage point on average over the past three years, and contributed 1.1 percentage points on average over the past 30 years.

Turning to the latest data, debt increased 0.9 percent over the year ending 2022 Q3, after adjusting for inflation. In the latest quarter, the low growth is the result of conflicting changes in subcategories. The overall effect is largely the result of an increase in federal government debt that is partially offset by a decrease in state and local government debt. Federal government borrowing (see ■) contributed 0.7 percentage point to the overall change, while the state and local government subtracted 0.3 percentage point (see ■). Households and nonprofits contributed 0.2 percentage point (see ■), and nonfinancial businesses contributed 0.3 percentage point (see ■).



contribution to one-year real growth — *moving averages*

	2022 Q3	'22 Q2	'22 Q1	'21 Q4	'21 Q3	3-year	10-year	30-year
Total	0.91	0.25	0.63	0.57	0.94	4.52	3.38	3.82
■ Households & Nonprofits	0.22	0.15	0.21	0.43	0.60	0.50	0.26	1.21
Home Mortgages	0.17	0.18	0.19	0.31	0.35	0.33	-0.01	0.82
Consumer Credit	0.11	0.06	0.04	0.01	0.01	0.05	0.22	0.30
■ Businesses	0.30	0.21	-0.10	-0.22	-0.35	0.97	1.20	1.06
Corporate Businesses	0.22	0.25	0.05	-0.06	-0.15	0.80	0.83	0.66
Debt Securities	-0.64	-0.59	-0.45	-0.31	-0.12	0.23	0.45	0.46
Loans	0.87	0.84	0.50	0.24	-0.03	0.57	0.38	0.20
Noncorporate Businesses	0.08	-0.04	-0.15	-0.16	-0.20	0.18	0.37	0.40
Commercial Mortgages	-0.04	-0.02	-0.04	-0.04	-0.02	-0.04	0.06	0.10
■ State & Local Governments	-0.34	-0.32	-0.29	-0.17	-0.09	-0.09	-0.11	0.14
■ Federal Government	0.73	0.20	0.81	0.53	0.78	3.14	2.02	1.41

Source: Federal Reserve, Bureau of Economic Analysis

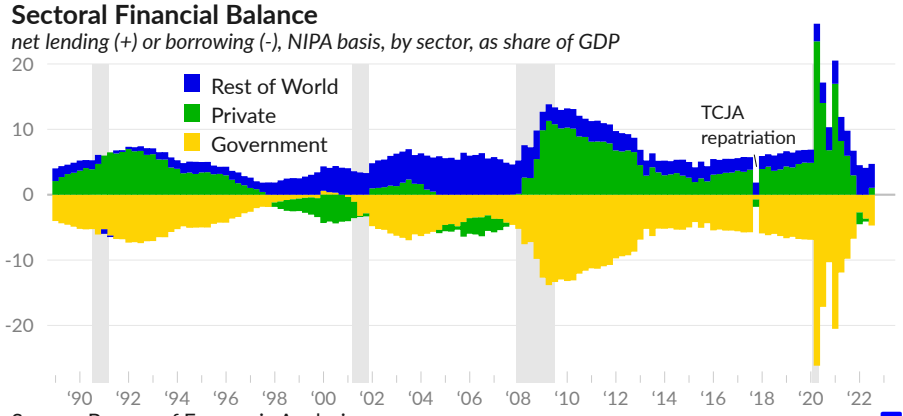
Sectoral Balances

The **sectoral financial balances** provide a high-level summary of US financial activities. This measure divides the world into three sectors: the US private sector (see ■), the US government (see ■), and the rest of the world (see ■), then examines the net lending and borrowing between the groups. In any given period, one sector's borrowing is another sector's lending, and as such the total will always sum to zero.

A sector runs a surplus in a given accounting period when its 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 receives, it borrows the difference. As an example, when the public sector runs a deficit and is a net borrower, it creates a surplus for other sectors by spending more than it takes in through taxes.

Sectoral Financial Balance

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



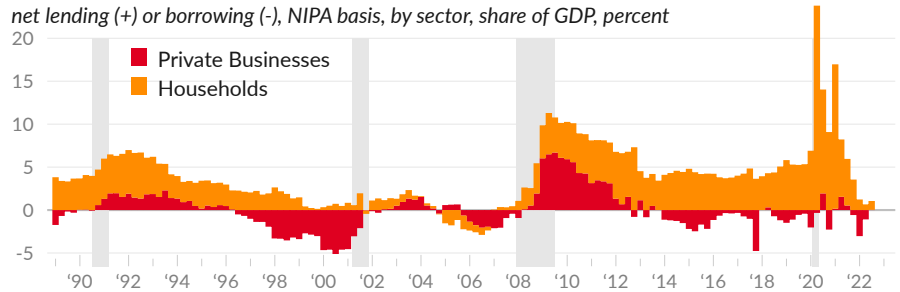
Source: Bureau of Economic Analysis

In 2022 Q3, the US private sector was a net lender (running a surplus) of the equivalent of 1.1 percent of GDP, substantially below the 4.5 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 2022 Q3, compared to 2.2 percent in 2019. Balancing these transactions, the government (federal, state, and local combined) was a net borrower (running a deficit) of the equivalent of 4.7 percent of GDP in 2022 Q3, compared to 6.7 percent in 2019.

Breaking out the two main categories in the private sector, households were net lenders (ran a surplus) of the equivalent of 1.0 percent of GDP in 2022 Q3 (see ■), while private businesses–corporate and noncorporate–were net lenders of the equivalent of 0.0 percent of GDP (see ■). In 2019, households were net lenders of 5.4 percent, and private businesses were net borrowers of 0.9 percent.

Domestic Private Sector Financial Balance

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



Source: Bureau of Economic Analysis

Wealth

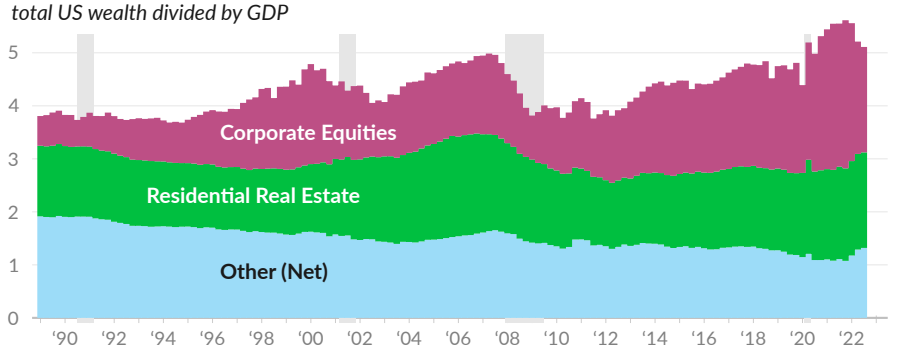
Net wealth is the sum of domestic tangible assets, such as land (excluding public land), structures, and equipment, minus foreign financial claims on these assets, plus domestic claims on foreign assets. US wealth totals $131.5 trillion in 2022 Q3, equivalent to $393,800 per capita, or a 5.11 multiple of GDP (511.1 percent of GDP.)

The ratio of US wealth to GDP has increased 125.7 percentage points since 1989, driven largely by increases in the market value of corporate equities and residential real estate. The market value of corporate equities was equivalent to a 1.99 multiple of GDP in 2022 Q3, compared to 1.70 in 1999–2000, during the tech bubble, and to 0.60 in 1989 (see ■). The market value of domestic residential real estate was equivalent to a 1.80 multiple of GDP in 2022 Q3, compared to 1.85 in 2005–2007, during the housing bubble, and 1.34 in 1989 (see ■).

On a net basis, all other US wealth is equivalent to a 1.32 multiple of GDP in 2022 Q3 and a 1.91 multiple in 1989 (see ■). The other category includes tangible assets of noncorporate businesses and governments, and domestic financial claims on foreign assets. The category also subtracts foreign financial claims on US assets, for example foreign holdings of US corporate equities and Treasury bonds.

Net Wealth to GDP Ratio

total US wealth divided by GDP



Source: Federal Reserve

The tangible assets of each major domestic sector are shown below, along with the summary of financial claims between the rest of the world and the US.

Derivation of US Net Wealth

share of GDP, percentage points

	2022 Q3	'22 Q2	'22 Q1	'21 Q3	2019	2005 –'07	1989
US Net Wealth	511.1	521.2	555.9	555.1	475.2	483.1	385.3
Households & Nonprofits	213.0	213.1	210.9	206.5	183.8	217.9	169.2
Noncorporate Businesses	77.3	77.1	76.2	75.1	67.3	72.6	71.1
Domestic Corporations	205.1	214.8	261.3	265.2	201.3	134.8	76.6
Federal Government	16.8	16.9	16.7	16.8	16.7	18.3	25.7
State & Local Government	61.1	60.6	59.6	58.2	55.8	48.8	41.9
Net Claims on ROW	-62.3	-61.4	-68.8	-66.7	-49.7	-9.3	0.8
US Claims on ROW	93.1	101.0	115.5	123.6	107.6	86.6	28.6
Less: ROW Claims on US	155.4	162.4	184.3	190.3	157.3	95.9	27.8

Source: Federal Reserve, Bureau of Economic Analysis

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.

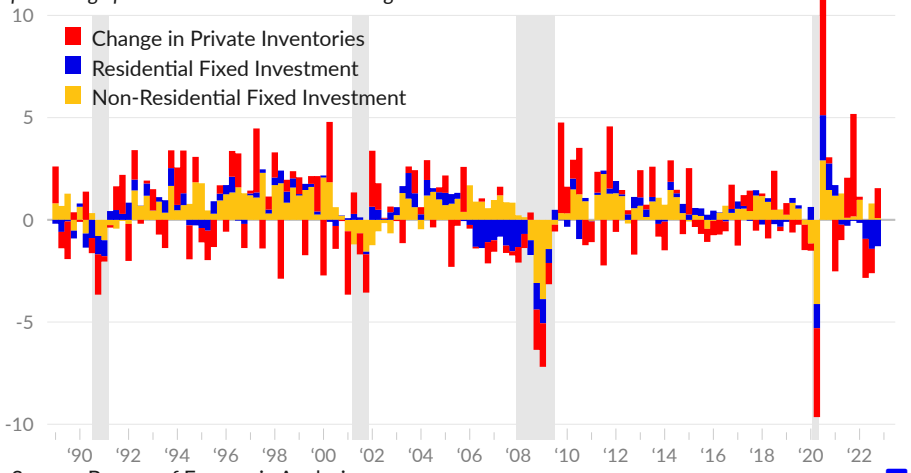
Additionally, the change in private inventories (see ■), whether intentional or not, affects GDP. For example, an increase in inventories increases GDP, as inventories represent goods that were produced but not sold, and GDP measures production. Inventory investment is a component of gross private investment in the national accounts, but has a different interpretation from fixed investment.

In the fourth quarter of 2022, private fixed investment, which does not include inventory investment, totals $4.5 trillion, equivalent to 17.1 percent of GDP. Non-residential (business) fixed investment totals $3.4 trillion, or 13.2 percent of GDP, while residential fixed investment totals $1.0 trillion (4.0 percent of GDP).

During the quarter, private fixed investment subtracted 1.20 percentage points from real GDP growth. Non-residential fixed investment contributed 0.09 percentage point, while residential fixed investment subtracted 1.29 percentage points. The change in private inventories contributed 1.46 percentage points.

Private Gross Investment

percentage point contribution to real GDP growth



Source: Bureau of Economic Analysis

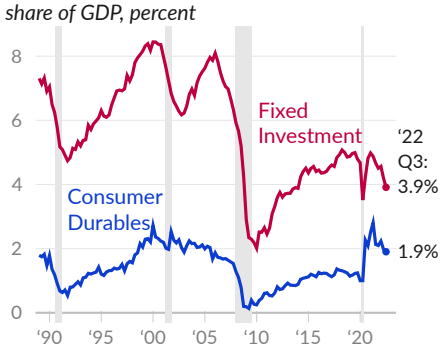
Net Fixed Investment

Gross investment in fixed assets covers both depreciation, the wearing down of existing assets, and new investment. Fixed investment less depreciation is referred to as **net fixed investment**, and positive net investment represents new or expanded investment.

In 2022 Q3, gross fixed investment was $5.4 trillion, depreciation was $4.4 trillion, and net fixed investment was $1.0 trillion, equivalent to 3.9 percent of GDP (see —). In 2019, net fixed investment was 4.9 percent of GDP.

Some economic measures also count consumer durable goods, such as autos, furniture, and appliances, as investments. Net investment in consumer durables was $489 billion in 2022 Q3, or 1.9 percent of GDP (see —). Consumer durable goods net fixed investment was 1.2 percent of GDP in 2019.

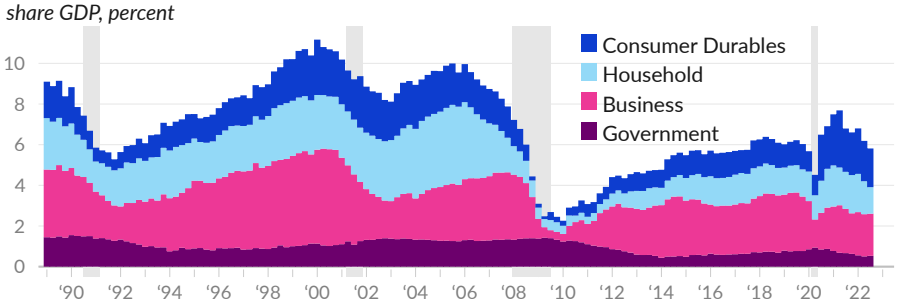
Net Fixed Investment
share of GDP, percent



Source: Federal Reserve, BEA

Levels of net fixed investment vary by sector and over time. In 2022 Q3, household sector net fixed investment, excluding consumer durables, was equivalent to 1.3 percent of GDP, compared to 1.3 percent in 2019 (see). From 2003 to 2006, during the housing bubble, household net fixed investment averaged 3.5 percent of GDP. Business sector net fixed investment is equivalent to 2.1 percent of GDP in 2022 Q3, and 2.8 percent in 2019 (see). Government net fixed investment is equivalent to 0.5 percent of GDP in 2022 Q3 and 0.8 percent in 2019 (see).

Net Fixed Investment by Sector or Type
share GDP, percent



Source: Federal Reserve, Bureau of Economic Analysis

	2022 Q3	'22 Q2	'22 Q1	'21 Q3	2019	2003 –'06	1999 –'01
— Net Fixed Investment	3.91	4.20	4.56	4.67	4.91	7.33	8.03
Business	2.07	2.07	2.12	2.17	2.80	2.55	4.27
Nonfin. Noncorp. Business	0.28	0.34	0.39	0.40	0.38	0.58	0.61
Nonfin. Corporations	1.70	1.66	1.62	1.65	2.14	1.74	3.17
Government	0.53	0.51	0.56	0.67	0.77	1.31	1.10
State & Local Gov.	0.43	0.39	0.43	0.50	0.65	1.08	1.13
Federal Gov.	0.11	0.11	0.13	0.17	0.12	0.23	-0.03
Household & Nonprofit	1.30	1.62	1.88	1.82	1.34	3.46	2.67
— / Consumer Durables	1.90	1.98	2.24	2.13	1.20	1.97	2.27

Source: Federal Reserve, Bureau of Economic Analysis

Households

This section covers the household sector of the economy. Households are the source of labor for production and the source of saving for investment. Households are also the primary consumers in the economy. The core topics in the households section include demographics, personal and household income and outlays, consumer sentiment, residential investment, household balance sheets, home ownership, housing, and poverty.

Demographics

Demographics provide a foundation for examining the household sector. Demographics provide insight on the structure and characteristics of the population. The demographics subsection covers population, population growth, household formation and headship, age, life expectancy, and education.

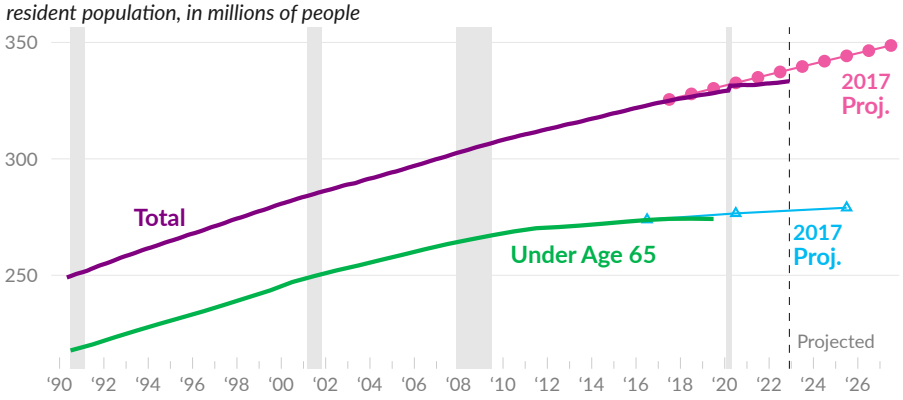
Population

The Census Bureau provides estimates and projections of the **US population**. Population levels and growth rates affect the economy and are critical pieces of information in determining and evaluating economic policies and outcomes. Population projections are based on assumptions, for example about the future level of net migration to the US, but are useful for thinking about future US demographics.

The US resident population is 333.0 million in December 2022, from the latest population estimates, released on December 21, 2021 (see —). The 2017-based projections of the future US resident population show a 2025 population of 344.2 million people (see —●—). The resident population under age 65 was estimated to be 274.2 million in 2019 (see —) and is projected to be 279.0 million in 2025 (see —△—).

Population Estimates and Projections

resident population, in millions of people



Source: Census Bureau

Population Estimates and Projections

resident population, in millions of people

	Dec 2022	2019	2018	2010	2000	1990	*Projected* 2025
Total Resident Population	333.3	328.2	326.7	309.3	282.2	249.6	344.2
Under Age 65	–	274.2	274.3	268.8	247.1	217.7	279.0
Over Age 65	–	54.1	52.4	40.5	35.1	31.9	65.2

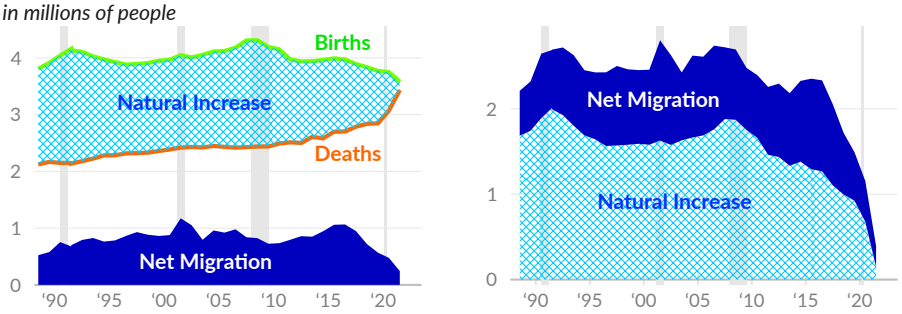
Source: Census Bureau

Population Growth

Population growth comes from two sources, natural increases (births minus deaths) and net migration. In the latest estimate, the US added 392,700 people over the year ending July 2021, a population growth rate of 0.1 percent. There were a total of 3.58 million births (see —), and 3.43 million deaths (see —), resulting in a natural increase of 148,000 people (see ⊠). In the same period, net migration from abroad increased the resident population by 244,600 people (see ■). For comparison, in 1989, there were 3.91 million births, 2.17 million deaths, and 578,200 net migrants to the US.

Components of US Population Growth

in millions of people



Source: Census Bureau

Related Measures

There are multiple measures of population, based on different definitions. As of December 2022, the **resident** population is 331.8 million, while the more-comprehensive resident population **including armed forces overseas** is 332.0 million, and the more-narrow **civilian noninstitutionalized** population, which is used in labor statistics, is 327.0 million. The Bureau of Economic Analysis (BEA) use midyear resident population estimates from the Census Bureau for per capita measures. Chartbook measures that use both population and BEA data use the resident population, while chartbook measures based on the Current Population Survey use the civilian noninstitutionalized population.

The Census Bureau further divides the population into those living in households and those living in group quarters. As of December 2022, the **household** population is 324.0 million, or 97.7 percent of the total resident population. The **group quarters** population is measured in depth as part of the 2020 Census. The 2020 group quarters population is 8.2 million, of which 3.8 million are institutionalized. Of these, two million are in prisons and jails, and 1.6 million are in nursing and skilled-care facilities. An additional 2.8 million people live in dormitories or student housing, 328,000 live in barracks, and 1.4 million live in other noninstitutional facilities such as shelters and group homes.

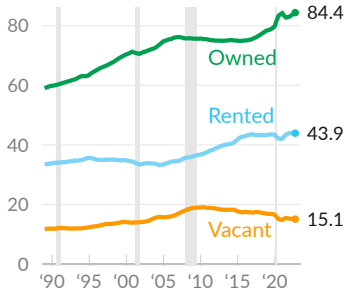
Lastly, an important related concept, **households**, are measured as occupied housing units. The number of households varies over time, separately from the population, as people make changes in their living arrangements. Over the year ending 2022 Q4, there were an average of 128.3 million households, compared to 94.2 million in 1990.

Household Formation

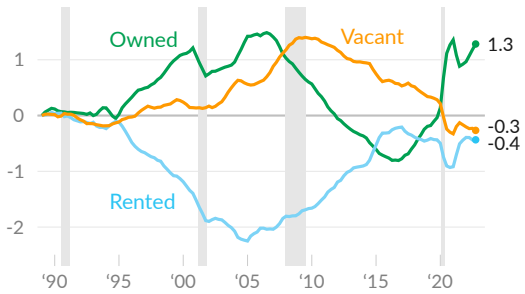
Households are measured as **occupied housing units**, whether occupied by the owner or rented. Over the year ending 2022 Q4, there were an average of 128.3 million total occupied housing units in the US, of which 43.9 million (34.2 percent) were rented, and 84.4 million (65.8 percent) were owner-occupied. Since 1989, the US has experienced the boom and bust of a major housing bubble. By 2016, the end result of the bubble bursting was a shortage of housing, as housing units per capita fell from 1995 to 2016.

Housing by Type

one-year moving averages
millions of units



change since 1989, units per capita, percentage points



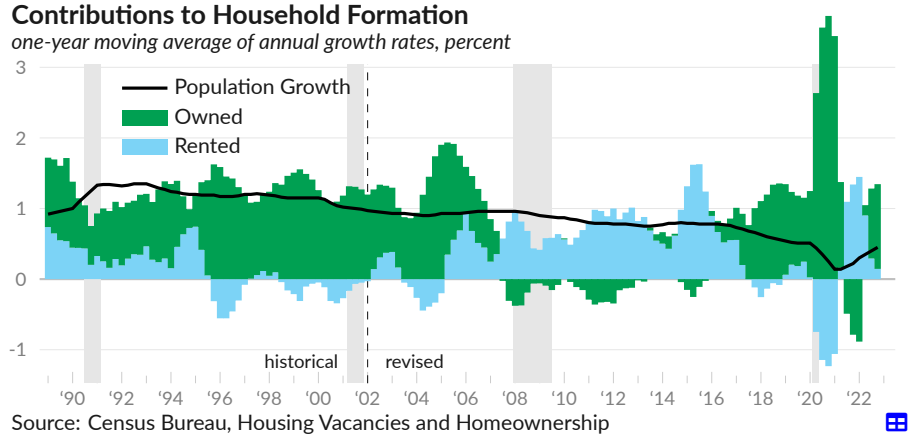
Source: Census Bureau

Household formation measures the change in occupied housing units. During the housing bubble, housing construction exceeded population growth and the homeownership rate increased. Following the collapse of the housing bubble, household formation was often below population growth and homeownership decreased as foreclosures converted homeowners into renters.

From 2019 Q4 to 2022 Q4, the average annual **household formation rate** was 1.4 percent, while annual population growth averaged 0.3 percent. Changes in the number of owner-occupied households contributed 1.3 percentage points on an average basis (see ■), and changes in rented households contributed 0.1 percentage point (see ■). Over the year ending 2022 Q4, the household formation rate averaged 1.3 percent, of which owner-occupied households contributed 1.2 percentage points, and rented households contributed 0.1 percentage point.

Contributions to Household Formation

one-year moving average of annual growth rates, percent



Source: Census Bureau, Housing Vacancies and Homeownership

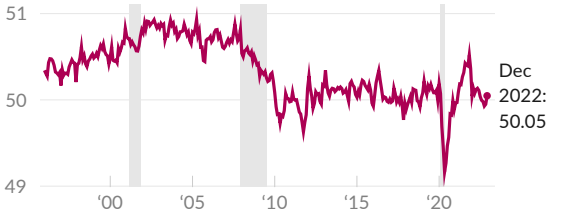
Headship Rate

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

The headship rate fell following the collapse of the housing bubble and during the COVID-19 pandemic, as more people moved in with family. The headship rate reached a low of 49.17 percent during May 2020, and is currently 50.05 percent, as of December 2022 (see —).

Aggregate Headship Rate

people age 16 and older, percent, seasonally adjusted



Source: Author's Calculations from CPS

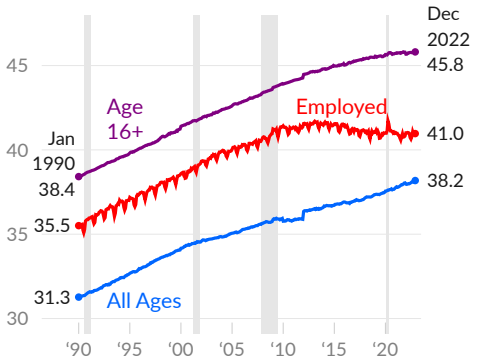
Age

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.

The **median age** is the midpoint for the age of a group; half of the group is older and half is younger. Tracking this point over time summarizes the age composition of the group. As a population ages, the median age will increase.

The median age of the overall civilian noninstitutionalized population, calculated from the Current Population Survey (CPS), is 38.2, as of December 2022, compared to 31.3 in January 1990 (see —). The median worker is 41 in December 2022, and 35.5 in January 1990 (see —).

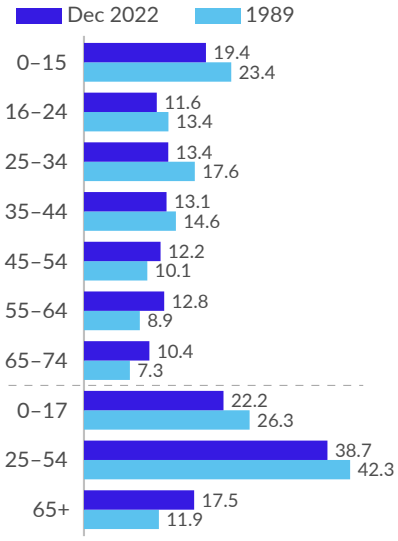
Median Age
by group, in years



Source: Author's Calculations from CPS

Economic indicators are sometimes based on specific **age groups**. As examples, labor statistics often exclude those under age 16, the retirement-age population is above a certain age, such as 64, and a popular measure of labor market slack is the age 25 to 54 employment rate. It is therefore useful to know what share of the overall population is in each major age group, and how the current age distribution compares with the past.

Age Groups
share of population, percent



Source: Author's Calculations from CPS

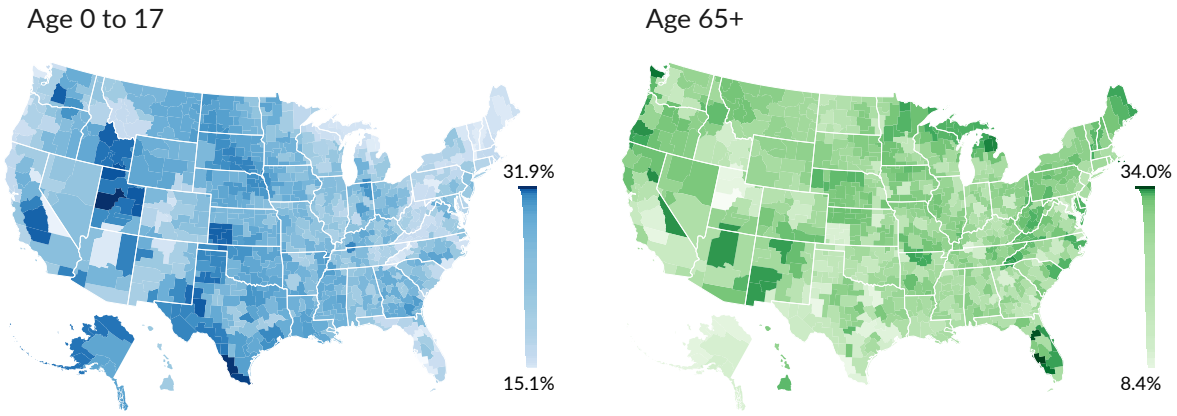
The noninstitutionalized civilian population used in most labor statistics totals 328.6 million in December 2022. Of this, 19.4 percent are under the working age of 16, equivalent to 63.8 million people. In 1989, the under-16 population was 23.4 percent of the total. The juvenile population, those under 18, is 72.9 million, equivalent to 22.2 percent of the population in December 2022, and compared to 26.3 percent in 1989.

Traditionally, the prime working age is between 25 and 54. In December 2022, 127.3 million people, 38.7 percent of the population, are age 25 to 54. In 1989, 42.3 percent of the population is age 25 to 54. The age 55 to 64 group is 12.8 percent of the population in the latest data and 8.9 percent in 1989. Those above the age of 65 comprise 17.5 percent in December 2022 and 11.9 percent in 1989.

Mapping American Community Survey data to commuter zones gives insight on the **age of local areas**. In 2021, 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 (31.9 percent), followed by Laredo, TX (31.5 percent), and Brownsville, TX (30.7 percent). The commuter zones with lowest share of the local population under 18 were Sarasota, FL (15.1 percent), Pittsfield, MA (16.4 percent), and Ocala, FL (16.7 percent).

The age 65 and older population is disproportionately concentrated in Florida. The commuter zone with the highest share of its population over 64 is Sarasota, FL (34.0 percent), followed by Ocala, FL (32.9 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 (10.4 percent), and Odessa, TX (10.6 percent).

Age Group Share of Commuter Zone Population, 2021



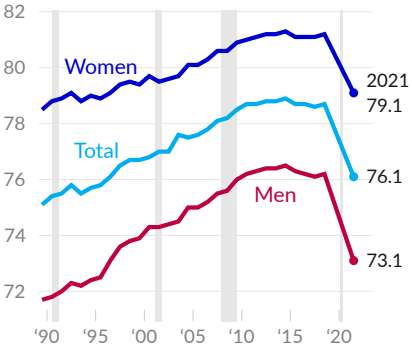
Source: American Community Survey, Dorn

Life expectancy

Life expectancy at birth summarizes the health and mortality of a population. The measure indicates the number of years a newborn is expected to live if mortality rates do not change. Life expectancy estimates are produced by the National Center for Health Statistics.

Life Expectancy at Birth

by group, in years



Source: NCHS

In 2021, US life expectancy at birth is 76.1 years (see —), a decrease of 2.8 years since 2014, but an increase of one year since 1989. Life expectancy for men is 73.1 years in 2021, compared to 76.5 years in 2014 and 71.7 years in 1989 (see —). Women born in 2021 are expected to live 79.1 years, based on current mortality rates, compared to estimates of 81.3 years for 2014 and 78.5 years for 1989 (see —).

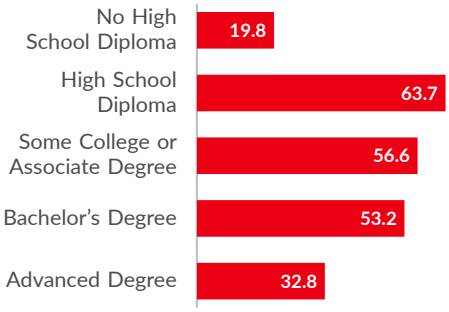
Falling life expectancy from 2014 to 2018 is generally associated with increased overdose deaths and the opioid epidemic. Life expectancy fell further during the COVID-19 pandemic, according to early estimates.

Education

Education is central in many discussions of the future of the US economy. Over the past few decades, college costs and college enrollment have both increased substantially. Households may be spending more on education as a response to changing job opportunities from globalization and other policy decisions. The end result is a much **more-educated population**, with much higher levels of student debt.

Over the year ending December 2022, 86.0 million people over the age of 25, or 38.0 percent of the total, have at least a bachelor's degree, with 32.8 million of those, or 14.5 percent of the total, holding an advanced degree such as a master's degree, medical or law degree, or PhD. An additional 56.6 million people have some college coursework but no degree or have an associate degree. A total of 63.7 million have a high school diploma but no college, while 19.8 million have no high school diploma.

Highest Level of Education
age 25+ population, in millions, December 2022

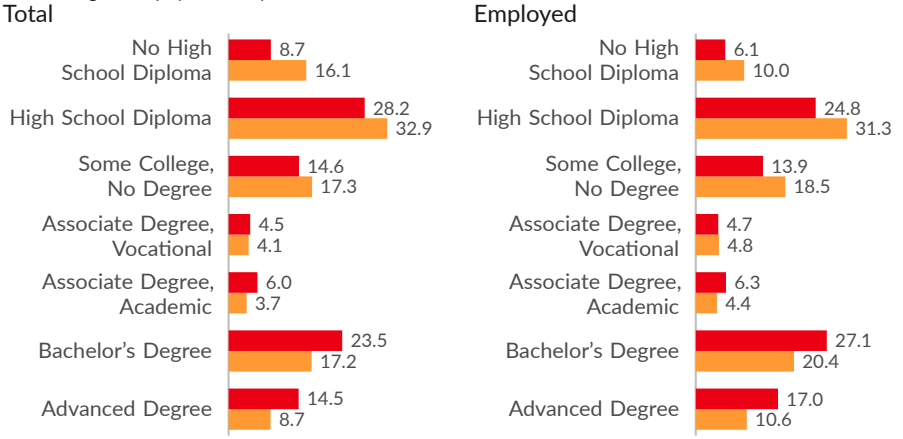


Source: Author's Calculations from CPS

The share of the population with a bachelor's degree or advanced degree increased by 12.2 percentage points since 2000. The increase is even more pronounced among those who are employed; 44.2 percent have a college degree or advanced degree in December 2022, an increase of 13.3 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 ■ December 2022 ■ 2000
share of age 25+ population, percent



Source: Author's Calculations from CPS

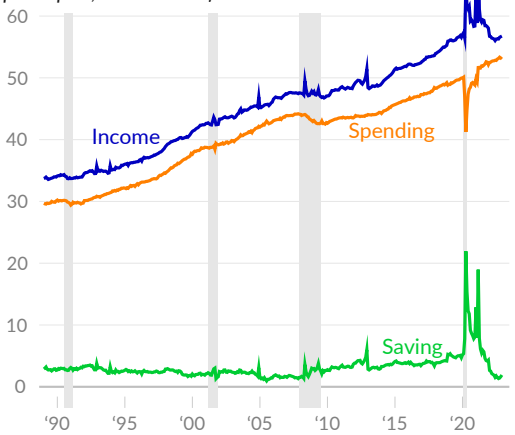
Income, Spending, and Saving

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**, totals $19.0 trillion, on an annualized basis, in December 2022, equivalent to $56,761 per person (see —). Personal consumption expenditures, or **consumer spending**, totals $17.7 trillion in December 2022, or $53,039 per person (see —). **Saving**, calculated as after-tax income minus consumer spending, totals $0.6 trillion, or $1,906 per person (see —).

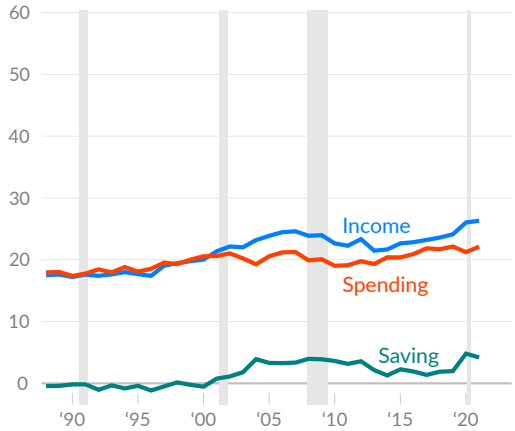
The Consumer Expenditure Survey provides data on typical income, spending, and saving, measured as the median rather than the average. Median income, spending, and saving are not affected by the activities of the highest income families, which skew mean or average data. Saving is calculated as after-tax income minus spending, excluding spending on pensions (which count as saving). In 2021, after-tax income is $26,315 per person for the middle fifth of households (see —). Spending for these households is $22,124 per person (see —), and saving is $4,191 per person (see —).

Average Income, Spending, and Saving
per capita, thousands of December 2022 US dollars



Source: Bureau of Economic Analysis

Median (Middle Quintile Average)
per householder, thousands of December 2022 US dollars



Source: Consumer Expenditure Survey

Average Income, Spending, and Saving
per capita, annualized, December 2022 US dollars

	Dec '22	Nov '22	Oct '22	Sep '22	Dec '21	Dec '19
Personal income	66,456	66,369	66,293	66,048	67,002	64,135
Personal current taxes	9,695	9,703	9,729	9,762	8,962	7,570
— After-tax income	56,761	56,666	56,565	56,286	58,040	56,565
— Consumer spending	53,039	53,212	53,344	53,147	52,128	49,966
— Personal saving	1,906	1,644	1,415	1,331	4,330	4,698

Source: Bureau of Economic Analysis

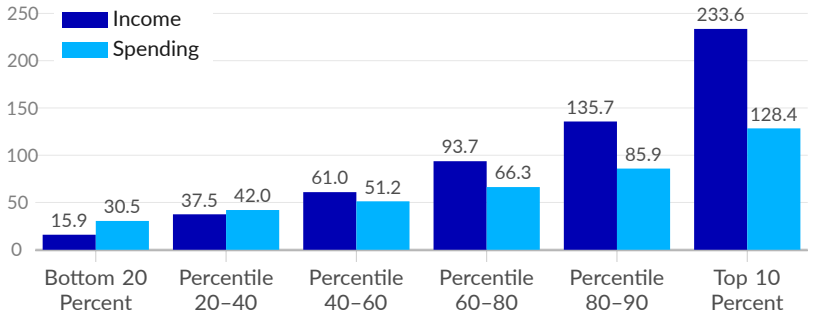
Distribution by Income

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 2021, after-tax household income (see ■) ranges from $15,900 for the bottom 20 percent to $233,600 for the top 10 percent. Spending, excluding pensions, (see ■) ranges from $30,500 for the bottom 20 percent by income, to $128,400 for the top 10 percent income group.

Household Income and Spending, by Income Percentile

thousands of 2021 dollars



Income is after taxes; spending does not include spending on pensions
Source: Consumer Expenditure Survey

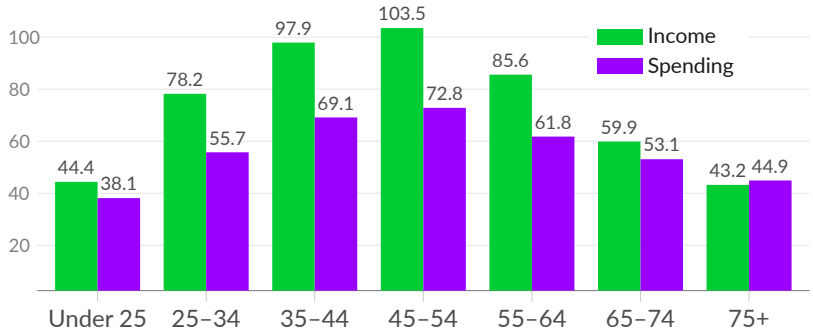
Distribution by Age

Income and spending vary by age and tend to peak between ages 45 and 54. Saving, the difference between income and spending, also varies by age and generally peaks during ages 45 to 54. In 2019, the oldest and youngest age groups in the data have income near or below their expenses, resulting in low or negative saving rates. In contrast, during the pandemic in 2020, income was above average and spending was below average, and saving rates were positive and far above average.

In 2021, after-tax household income (see ■) ranges from $43,200 for the oldest age group to $103,500 for the 45 to 54 age group. Spending, excluding pensions, (see ■) ranges from $38,100 for the youngest age group to $72,800 for the 45 to 54 age group.

Household Income and Spending, by Age of Reference Person

thousands of 2021 dollars



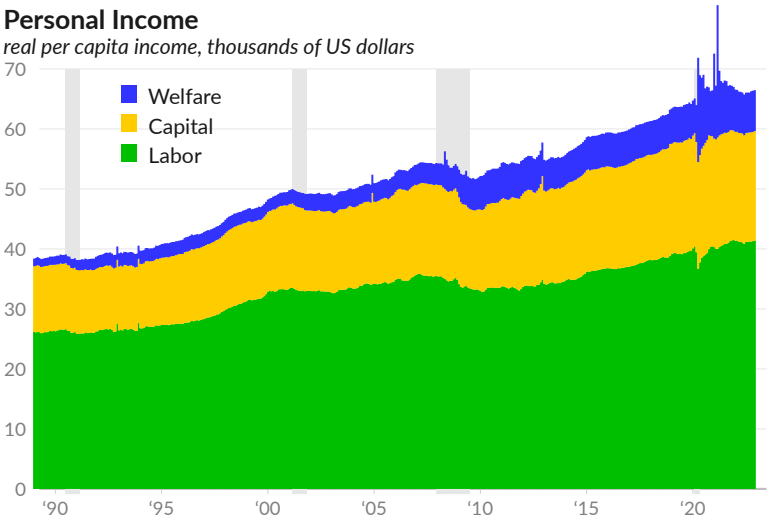
Income is after taxes; spending does not include spending on pensions
Source: Consumer Expenditure Survey

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 as government social benefits less contributions to social insurance.

In December 2022, annualized personal income is $66,456 per capita. Labor income totals $41,370 per person; capital and proprietor income is $18,262 per person; and welfare or transfer income is $6,825 per person.

Personal Income
real per capita income, thousands of US dollars



Source: Bureau of Economic Analysis, Author

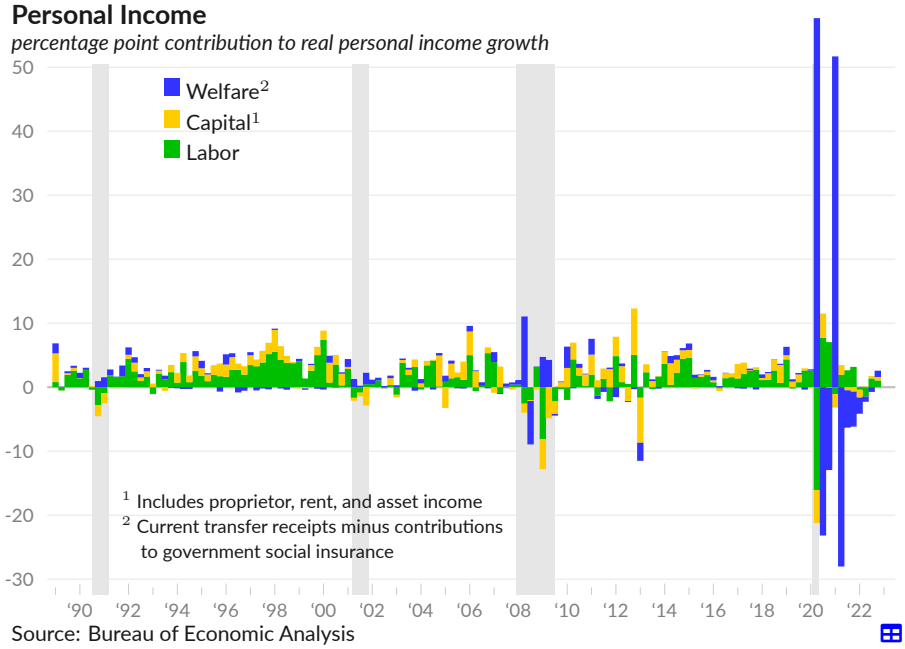
Personal Income by Source
per capita, annualized, December 2022 US dollars

	Dec '22	Nov '22	Oct '22	Sep '22	Dec '21	Dec '19
Personal income	66,456	66,369	66,293	66,048	67,002	64,135
■ Labor	41,370	41,300	41,225	41,236	41,493	39,645
Wages and salaries	34,136	34,081	34,019	34,025	34,210	32,340
Supplements	7,234	7,219	7,205	7,211	7,283	7,305
■ Capital	18,262	18,229	18,230	18,178	18,232	18,673
Proprietors' income	5,607	5,593	5,607	5,642	5,589	5,518
Rental income	2,434	2,418	2,406	2,399	2,332	2,427
Personal interest income	5,379	5,328	5,282	5,253	5,232	5,673
Personal dividend income	4,841	4,890	4,935	4,884	5,080	5,055
■ Welfare	6,825	6,840	6,838	6,634	7,276	5,818
Social security	3,653	3,666	3,685	3,663	3,548	3,529
Medicare	2,840	2,818	2,799	2,789	2,848	2,708
Medicaid	2,348	2,348	2,350	2,356	2,353	2,091
Unemployment insurance	65	62	57	54	88	98
Veterans' benefits	493	491	489	489	495	469
Other	2,314	2,336	2,332	2,157	2,790	1,687
Less welfare contributions	-5,096	-5,089	-5,081	-5,083	-5,075	-4,927

Source: Bureau of Economic Analysis

Personal Income

percentage point contribution to real personal income growth



Source: Bureau of Economic Analysis

Aggregate real personal income increased at an annualized rate of 2.58 percent in 2022 Q4. Labor income contributed 1.06 percentage points to overall growth, capital income contributed 0.53 percentage point, and welfare income contributed 0.99 percentage point.

Personal Income by Source

percentage point contribution to real personal income growth

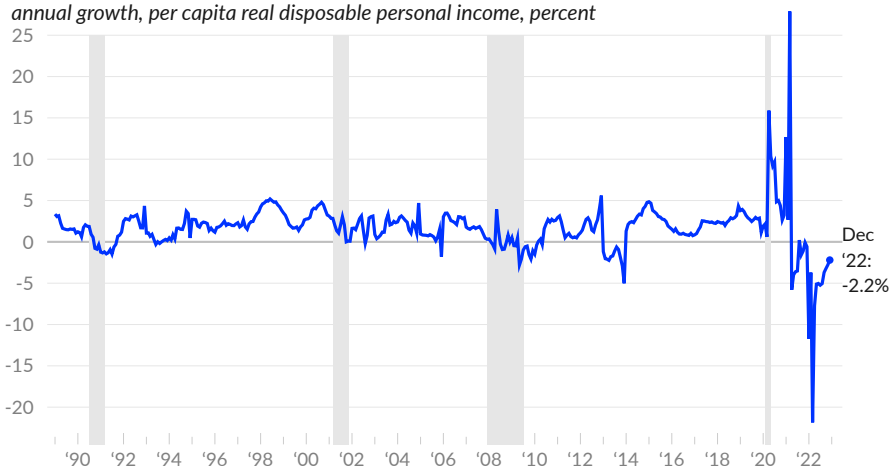
	2022 Q4	'22 Q3	'22 Q2	'22 Q1	'21 Q4	3-year *moving averages*	10-year *moving averages*	30-year *moving averages*
Personal income	2.58	0.99	-2.19	-4.15	-2.98	2.97	2.93	2.84
Labor	1.06	1.37	-1.46	-0.40	3.18	0.86	1.49	1.52
Wages and salaries	0.93	1.29	-1.12	-0.34	3.13	0.88	1.31	1.27
Supplements	0.13	0.08	-0.34	-0.06	0.05	-0.02	0.18	0.24
Capital	0.53	0.37	0.09	-1.22	-0.69	-0.25	0.59	0.76
Proprietors' income	-0.12	0.16	-0.15	-0.20	-0.56	-0.06	0.06	0.25
Rental income	0.13	0.20	0.33	-0.15	0.11	0.03	0.07	0.15
Personal interest income	0.53	0.21	0.15	-0.31	-0.43	-0.13	0.11	0.07
Personal dividend income	-0.00	-0.20	-0.24	-0.57	0.19	-0.10	0.34	0.28
Welfare	0.99	-0.74	-0.82	-2.53	-5.47	2.36	0.85	0.56
Social security	0.02	-0.09	-0.24	0.94	-0.13	0.08	0.14	0.15
Medicare	0.26	-0.02	-0.23	-0.15	-0.06	0.06	0.13	0.15
Medicaid	-0.14	-0.22	0.23	0.08	-0.27	0.11	0.13	0.12
Unemployment insurance	0.03	-0.01	-0.10	-0.20	-3.99	0.41	0.09	0.03
Veterans' benefits	0.02	0.01	-0.01	-0.03	-0.02	0.02	0.04	0.02
Less welfare contributions	-0.11	-0.16	0.17	-0.18	-0.34	-0.10	-0.26	-0.18

Source: Bureau of Economic Analysis

The Bureau of Economic Analysis report an inflation-adjusted one-year change in after-tax income per person of -2.2 percent in December 2022, -2.8 percent in November 2022, and -0.6 percent in December 2021 (see —). Over the past year, the measure has averaged -6.0 percent. During the three years before the COVID-19 pandemic, per capita after-tax income grew at an average annual rate of 2.6 percent.

After-Tax Income Growth

annual growth, per capita real disposable personal income, percent



Source: Bureau of Economic Analysis

Distribution of Personal Income

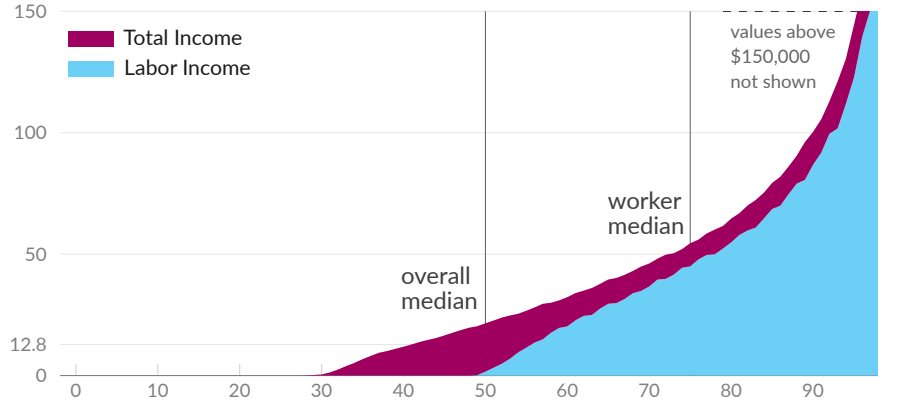
Labor income, which includes wages and salaries as well as self-employment income, is the vast majority of personal income. Over calendar year 2021, 50 percent of people have any labor income (see ■). Only 43 percent of people have labor income above the single-person poverty threshold of $12,880.

Total income, includes after-tax labor income plus welfare and capital income, (see ■) reaches 71 percent of people in 2021. People who did not receive any income by the total income measure typically live with people who receive income.

In 2021, 4.6 percent of people have total income of more than $150,000. Note that the chart cuts off income above $150,000.

Distribution of Personal Income, 2021

by percentile of income, thousands of US dollars



Source: Author's Calculations from CPS ASEC

Personal Income
number of recipients in thousands, income amounts in 2021 US dollars

	2021			2019		
	Total with income	Median income	Mean income	Total with income	Median income	Mean income
Total	237,500	37,522	57,143	235,292	38,127	57,364
Earnings	168,041	45,470	62,174	169,802	44,019	61,217
Social Security	55,324	16,278	17,201	54,985	16,451	17,482
Supplemental Security Income	6,035	8,707	8,661	5,715	8,930	8,969
Public assistance	1,545	2,398	4,128	1,383	2,873	4,296
Veterans' benefits	4,542	15,453	19,785	4,406	14,576	18,687
Survivor benefits	3,219	10,098	18,505	3,197	10,316	18,164
Disability benefits	2,732	7,583	12,566	2,729	9,385	14,706
Unemployment compensation	9,609	6,907	9,422	3,345	3,951	5,588
Workers' compensation	1,410	7,014	13,249	1,485	8,514	15,101
Property income	151,198	1,687	6,725	146,025	1,802	6,591
Retirement income	29,820	14,978	25,956	30,731	15,385	27,347
Pension income	20,341	15,104	23,930	20,850	16,869	27,081
Alimony	164	7,534	15,476	216	14,100	19,581
Child support	3,359	4,103	5,779	3,788	4,409	6,236
Educational assistance	7,333	5,704	9,110	7,848	5,537	9,201
Outside financial assistance	2,517	4,045	8,928	2,587	4,262	9,539
Other	1,698	1,690	7,095	2,407	1,929	13,730

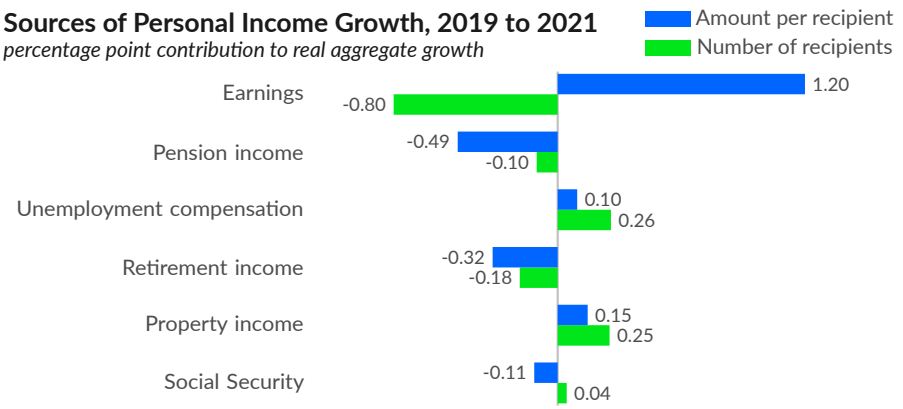
Source: Census Bureau, Bureau of Labor Statistics

Contributions to Personal Income Growth

Annual data on personal income describe 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 payment amounts (see) and changes in who is receiving payments (see).

From 2019 to 2021, aggregate pre-tax personal income increased by a total of 0.55 percent, after adjusting for changes in prices. Compared to 2019, fewer people received earnings from work, while mean earnings increased. Real income from pensions and retirement plans fell over the period. Unemployment compensation and property income contributed to the overall growth in real income.

Sources of Personal Income Growth, 2019 to 2021
percentage point contribution to real aggregate growth



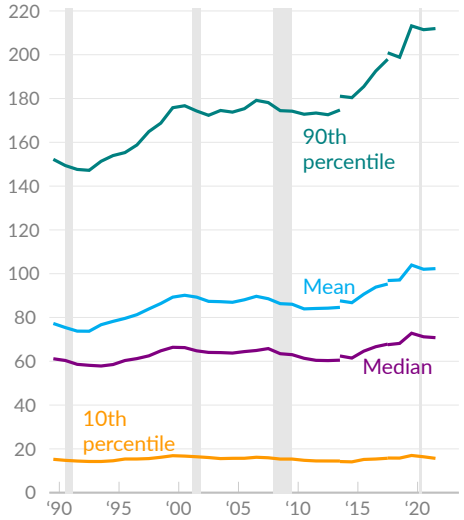
Source: Census Bureau, Bureau of Labor Statistics

Household Income

Given the variance in personal income, with many people receiving no income at all, individuals often live together and combine their income and expenses. This subsection covers household income, the combined income of all people in a given housing unit.

As with personal income, household income is distributed very unevenly in the US. The Census Bureau and Bureau of Labor Statistics report historical household income data, adjusted for changes in prices. The mean or average household income is $102,316 in 2021 (see —), compared to $102,020 in 2020, and $103,949 in 2019. In 2000, real mean household income was $90,142.

Real Household Income
thousands of 2021 US dollars



Source: Census Bureau

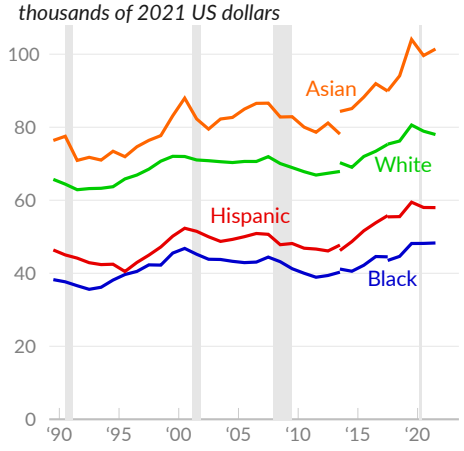
Real median household income (see —), the price-adjusted midpoint among household incomes, is $70,784 in 2021, $71,186 in 2020, and $72,808 in 2019. For comparison, real median household income was $66,248 in 2000. Since 2000, real median income increased by a total of 6.8 percent.

The price-adjusted income limit for the 90th percentile is $211,956 in 2021 (see —), $211,438 in 2020, $213,171 in 2019, and $176,702 in 2000. Ten percent of households make more than this level.

On the opposite end of the income distribution, the 10th percentile income limit is $15,660 in 2021 (see —), $16,386 in 2020, $16,984 in 2019, and $16,695 in 2000. Ten percent of households make less than this level.

The Census Bureau also report household income based on the race or ethnicity of the householder. Household income varies substantially by race, in the US, and the racial income gap has been persistent, over time.

Real Median Household Income
thousands of 2021 US dollars



Source: Census Bureau

Black median household income was $48,297 in 2021, compared to an inflation-adjusted equivalent of $48,175 in 2020 (see —). Non-Hispanic white median household income was $77,999 in 2021 and $78,912 in 2020 (see —). Hispanic (any race) median household income was $57,981 in 2021 and $58,015 in 2020 (see —). Asian median household income was $101,418 in 2021 and $99,622 in 2020 (see —).

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.

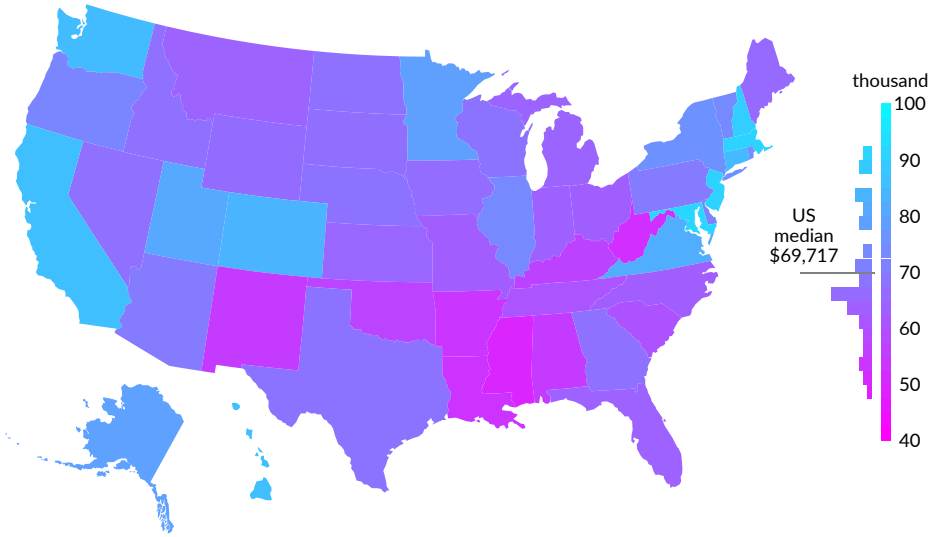
Lastly, the Census Bureau report median household income by state, calculated using the American Community Survey. In 2021, the median US household income, using this measure, is $69,717. In the same year, the median income in 19 states and the District of Columbia is above the national median, and the median income in 31 states is below the national median.

In 2021, Maryland tops the list, with a median household income of $90,203. The District of Columbia has the second highest income ($90,088), followed by Massachusetts ($89,645). Other high-income states include New Jersey ($89,296), New Hampshire ($88,465), California ($84,907), Hawaii ($84,857), Washington ($84,247), Connecticut ($83,771), and Colorado ($82,254).

The state with the lowest 2021 median household income is Mississippi ($48,716), followed by West Virginia ($51,248), Louisiana ($52,087), Arkansas ($52,528), Alabama ($53,913), and New Mexico ($53,992). Median household income in Puerto Rico is $22,237.

Household Income, 2021

median household income by state, 2021 US dollars



Source: Census Bureau, American Community Survey

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.

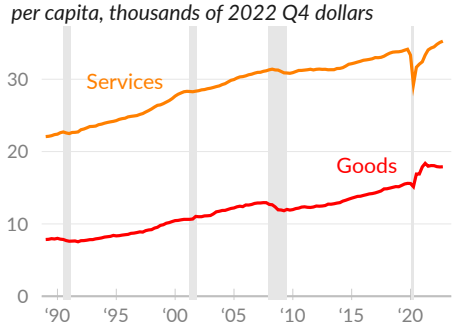
Over the past 30 years, increased consumer spending represents the majority of economic growth. Consumer spending usually increases when households have more income and falls when households have less income. This effect is visible in both the long-run and during the course of a business cycle, with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

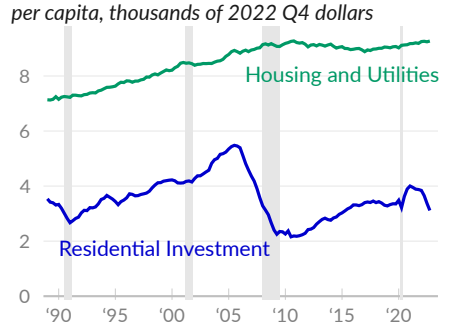
Expenditure Types
per capita, thousands of 2022 Q4 dollars



Source: Bureau of Economic Analysis

Total consumer spending is $17.8 trillion in 2022 Q4, compared to a price-adjusted $17.7 trillion in 2022 Q3 and $16.5 trillion in 2019 Q4. On a per person basis, consumer spending is $53,163 in 2022 Q4, of which $17,899 are spent on goods (see —) and $35,264 on services (see —). In the fourth quarter of 2019, before the pandemic, consumer spending on goods was $15,603 per person, and spending on services was $34,145 per person, after adjusting for inflation.

Shelter Costs
per capita, thousands of 2022 Q4 dollars



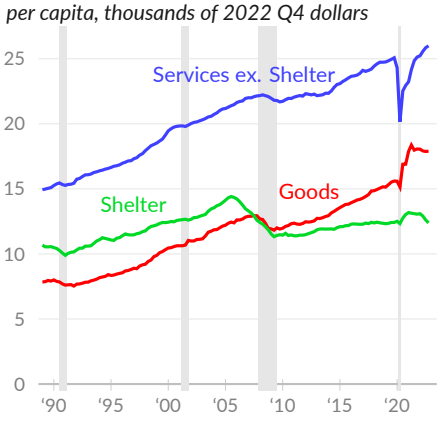
Source: Bureau of Economic Analysis

Within consumer spending on services, housing and utilities spending totals $9,269 on an annualized and per person basis in 2022 Q4 (see —) and $9,071 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 2022 Q4, residential investment totals $3,115 per person (see —), compared to $3,353 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 2022 Q4 dollars



Source: Bureau of Economic Analysis

Consumer spending on services other than housing and utilities totals $25,994 per person, on an annualized basis, in 2022 Q4 (see —), compared to $25,848 in 2022 Q3, and $25,075 in 2019 Q4. Spending on non-housing services has increased 3.7 percent since 2019 Q4.

Shelter costs, which combine housing, utilities, and residential fixed investment, are $12,384 per person in 2022 Q4 (see —), $12,614 in 2022 Q3, and $12,424 in 2019 Q4. Shelter spending peaked at $14,410 per person in the third quarter of 2005, during the housing bubble.

Expenditure Types

per capita, annualized, 2022 Q4 dollars

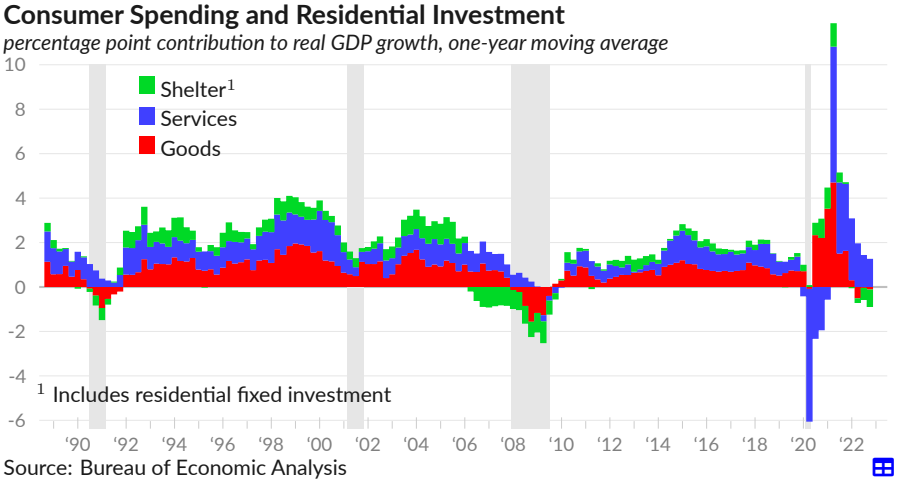
	2022 Q4	2019 Q4	2000 Q1	1989 Q1
Total	$53,163	49,791	37,880	29,595
— Goods	17,899	15,603	10,454	7,844
Motor Vehicles and Parts	2,145	2,033	1,765	1,328
Furniture and HH Equipment	1,579	1,308	623	431
Recreational Durable Goods	1,935	1,278	268	78
Groceries	3,925	3,820	3,260	3,238
Clothes and Shoes	1,487	1,244	925	687
— Services ex. Shelter	25,994	25,075	19,457	14,937
Health Care Services	8,321	8,195	5,415	4,903
Transportation	1,727	1,821	1,599	1,110
Recreational	1,902	1,982	1,577	1,125
Food and Accommodations	3,927	3,670	2,853	2,620
Financial and Insurance	3,990	3,697	3,854	2,283
— Shelter	12,384	12,424	12,435	10,672
Housing Services and Utilities	9,269	9,071	8,210	7,136
Residential Fixed Investment	3,115	3,353	4,225	3,537

Source: Bureau of Economic Analysis

Next, we examine the effect on GDP growth from 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). These categories contributed 1.4 percentage points to GDP growth in 2022 Q4 and contributed 1.5 percentage points in 2022 Q3, compared to an addition of 1.6 percentage points in 2019 Q4, before the pandemic.

Consumer Spending and Residential Investment

percentage point contribution to real GDP growth, one-year moving average



Source: Bureau of Economic Analysis

In the the fourth quarter of 2022, household spending on goods contributed 0.3 percentage point to GDP growth, household spending on services other than housing and utilities added 0.9 percentage point, and shelter spending and investment subtracted 1.1 percentage points.

Consumer Spending and Residential Investment

percentage point contribution to real GDP growth

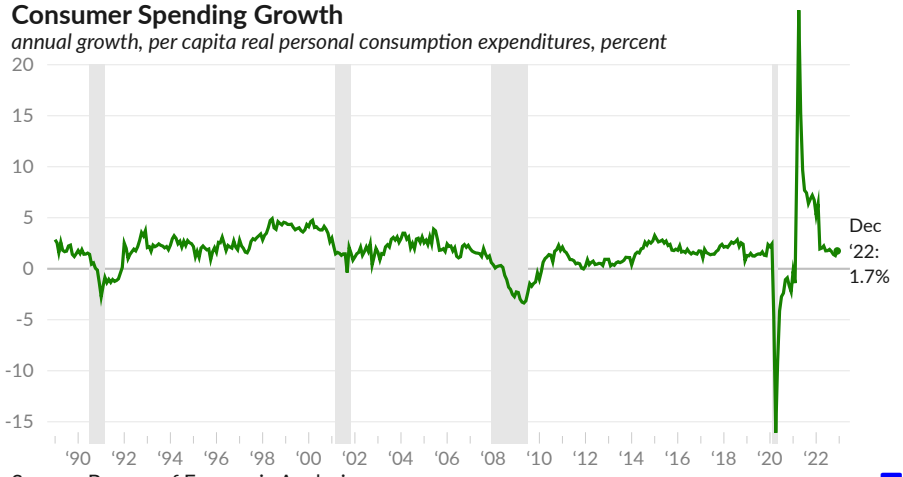
	2022 Q4	'22 Q3	'22 Q2	'22 Q1	'21 Q4	*moving averages* 3-year	10-year	30-year
Total	1.42	1.54	1.38	0.91	2.14	2.10	1.82	1.86
■ Goods	0.26	-0.08	-0.61	-0.02	0.55	1.19	0.94	0.86
Motor Vehicles and Parts	0.20	-0.38	-0.32	0.42	0.20	0.09	0.10	0.09
Furniture and HH Equipment	0.01	0.05	-0.01	-0.07	-0.13	0.14	0.13	0.10
Recreational Durable Goods	-0.04	0.23	0.04	0.26	0.29	0.34	0.22	0.24
Groceries	0.06	-0.15	-0.52	-0.39	0.03	0.06	0.10	0.09
Clothes and Shoes	0.02	0.11	0.08	-0.09	-0.07	0.14	0.08	0.08
■ Services (ex. Shelter)	0.95	1.66	1.89	0.57	1.64	0.78	0.79	0.81
Health Care Services	0.39	0.58	0.05	-0.05	0.42	0.20	0.30	0.27
Transportation	0.06	0.00	0.14	-0.03	0.13	-0.02	0.06	0.06
Recreational	0.08	0.09	0.21	0.05	0.35	0.00	0.04	0.06
Food and Accommodations	0.09	0.25	0.72	0.01	0.17	0.19	0.15	0.10
Financial and Insurance	0.01	0.27	0.10	-0.09	0.33	0.17	0.05	0.12
■ Shelter	-1.08	-1.45	-0.83	0.21	-0.11	0.06	0.18	0.24
Housing Services and Utilities	0.21	-0.03	0.10	0.36	-0.06	0.13	0.09	0.20
Residential Fixed Investment	-1.29	-1.42	-0.93	-0.15	-0.05	-0.07	0.09	0.04

Source: Bureau of Economic Analysis

Consumer spending is also reported on a monthly basis. In December 2022, consumer spending totals $53,039 per capita, on an annualized basis. Inflation- and population-adjusted consumer spending increased 1.7 percent over the year ending December 2022 (see —), far below the previous year rate (an increase of 6.7 percent over the year ending December 2021).

Consumer Spending Growth

annual growth, per capita real personal consumption expenditures, percent



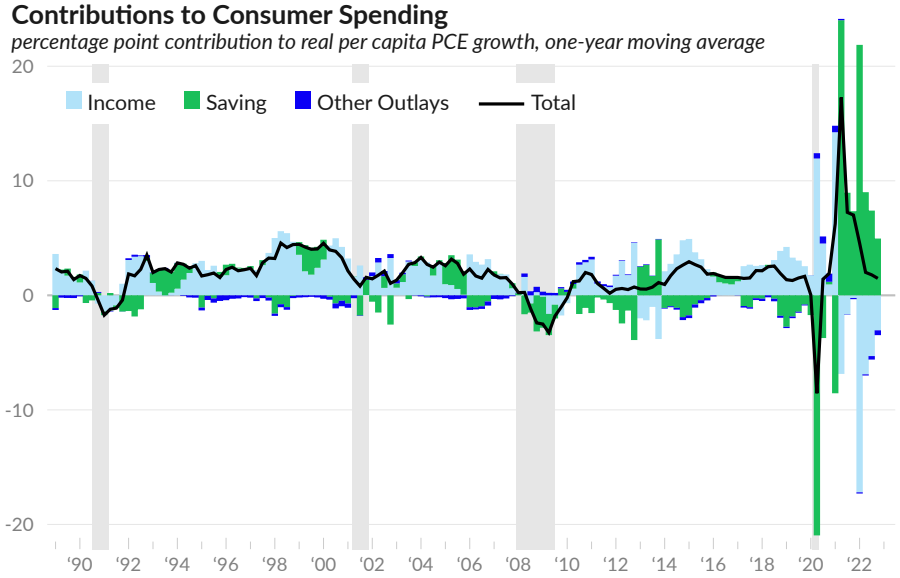
Source: Bureau of Economic Analysis

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 1.5 percent over the four quarters ending 2022 Q4. Changes to disposable income subtracted 3.1 percentage points, changes to saving added five percentage points, and changes to other outlays subtracted 0.4 percentage point. During 2019, real per capita consumer spending increased at an average rate of 1.5 percent. Increased income contributed 3.3 percentage points, and a slight increase in saving subtracted 1.7 percentage points.

Contributions to Consumer Spending

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



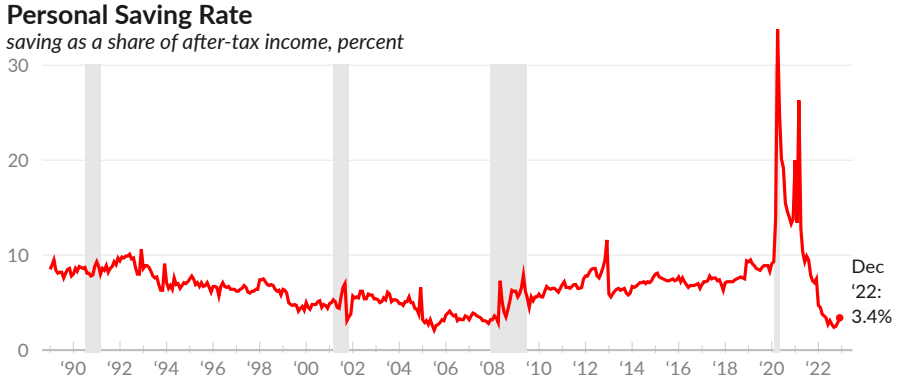
Source: Bureau of Economic Analysis

Personal Saving

The after-tax income that people do not spend is considered **personal saving**, from an economic accounting perspective. Peoples' savings are invested through the financial system and become the current fixed investment or consumption activities of other groups in the economy. Savers generally receive a return from this investment.

In December 2022, the Bureau of Economic Analysis report a personal saving rate of 3.4 percent (see —). The personal saving rate decreased by a total of 5.9 percentage points since February 2020.

Personal Saving Rate
saving as a share of after-tax income, percent

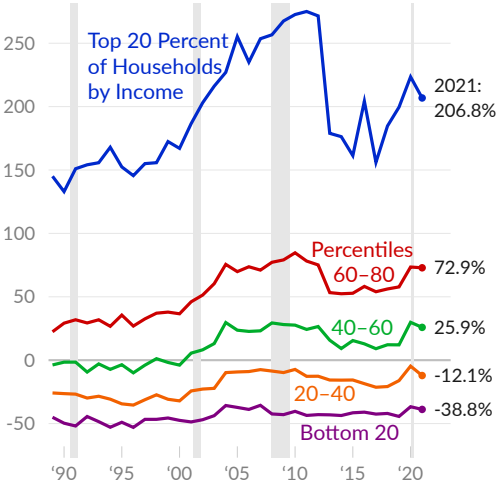


Source: Bureau of Economic Analysis

Distribution of Saving

With such a wide distribution of after-tax income, **saving rates vary massively between households**. Some households dissave and others save more than two typical incomes. Saving by income quintile is calculated using the Consumer Expenditure Survey (CE) as after-tax income minus spending (other than spending on pensions). The following chart shows the average saving of each group divided by the US median personal income, thus reporting saving, or dissaving, in terms of a typical annual US income.

Saving Rate by Income Quintile
income quintile average saving, as share of US median personal income, percent



Source: Author's Calculations from CE

The 20 percent of households with the least income dissave the equivalent of 38.8 percent of the US median personal income in 2021 (see —). This group includes people going into debt and retirees dissaving. In the same period, the top 20 percent of households save the equivalent of 206.8 percent of the median income (see —).

The middle fifth of households by income, percentiles 40–60, saved the equivalent of 25.9 percent of the median income (see —). The fifth of households below the middle group, in percentiles 20–40, dissaved the equivalent of 12.1 percent of a median income in 2021 (see —).

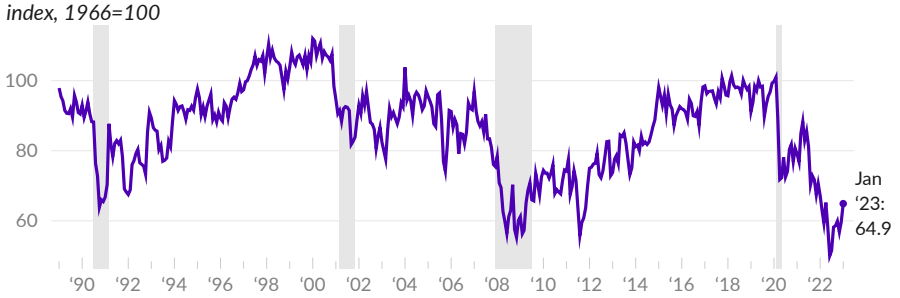
Consumer Sentiment

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 2023, the latest value of the consumer sentiment index is 64.9, following 59.7 in December 2022, and compared to 67.2 one year prior, in January 2022. As a pre-COVID baseline, the index average value was 97.3 during the year ending February 2020; the consumer sentiment index is currently 33.3 percent below this level.

Consumer Sentiment

index, 1966=100



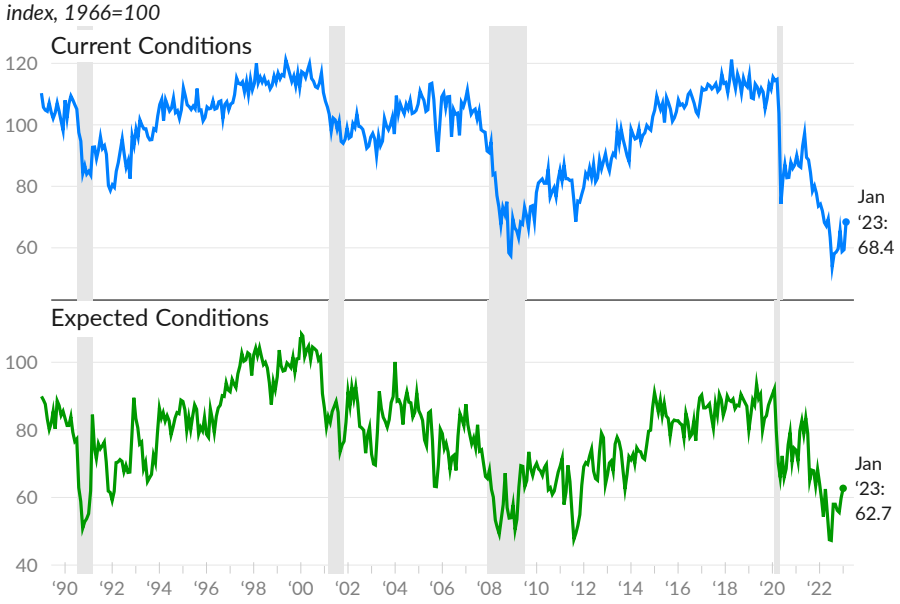
Source: University of Michigan

The consumer sentiment index combines views on current and future economic conditions. In January 2023, the index tracking views on current economic conditions was 68.4, compared to 59.4 in December 2022, and 110.8 in 2019 (see —).

In January 2023, the index tracking consumer expectations for future economic conditions was 62.7, compared to 59.9 in December 2022, and 86.5 in 2019 (see —).

Consumer Sentiment Index Components

index, 1966=100



Source: University of Michigan

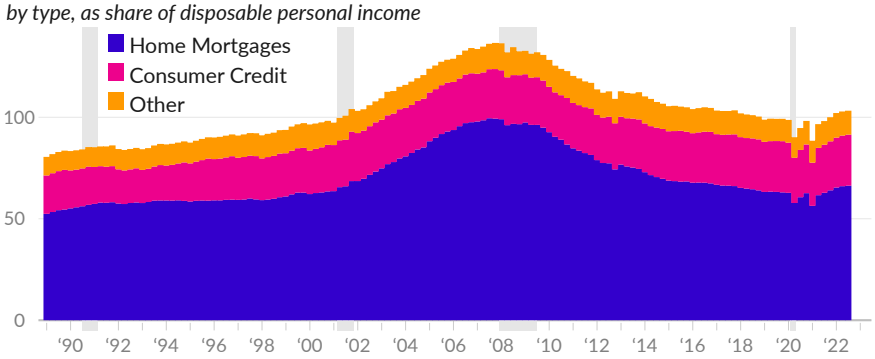
Household Balance Sheets

Liabilities

The liabilities of households and nonprofit institutions total $19.2 trillion in 2022 Q3, as reported by the Federal Reserve. Home mortgages are the main household liability, and total $12.4 trillion (see ■). Consumer credit liabilities include auto loans, credit card debt, student loans, and other personal loans, and total $4.7 trillion (see ■). The remaining liabilities are primarily attributable to nonprofits (see ■).

The ratio of household and nonprofit debt to disposable personal income has fallen to 103.2 percent in 2022 Q3 from its housing-bubble peak of 136.6 percent in 2007 Q4. Over the past three years, household and nonprofit debt has increased 17.8 percent while disposable personal income has increased 13.9 percent. As a result, the ratio of household and nonprofit debt to disposable personal income has increased by four percentage points.

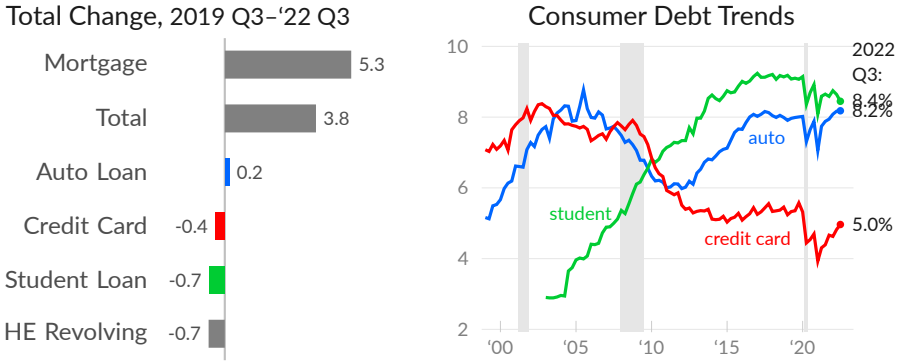
Household and Nonprofit Debt
by type, as share of disposable personal income



Source: Federal Reserve, Bureau of Economic Analysis

Federal Reserve Bank of New York (FRBNY) analysis of Equifax data shows $16.5 trillion in total consumer debt in the third quarter of 2022, which is equivalent to 88.6 percent of disposable personal income. Over the past three years, total consumer debt has increased by $2.55 trillion, compared to an increase of $2.30 trillion in disposable personal income. As a result, the ratio of total consumer debt to disposable personal income increased 3.8 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 mortgage debt increasing as a share of income while consumer credit comprises roughly the same share of income.

The FRBNY data show mortgage debt, including home equity lines of credit, totals $11.99 trillion in the third quarter of 2022, equivalent to 64.4 percent of disposable personal income. Student loans total $1,574 billion, or 8.4 percent of income; auto loans total $1,524 billion (8.2 percent of income); and credit card debt is $925 billion (5.0 percent of income).

Over the past three years, the ratio of total mortgage debt to disposable personal income grew by 4.6 percentage points, compared to a decrease of 0.7 percentage point for student loans, an increase of 0.2 percentage point for auto loans, and a decrease of 0.4 percentage point for credit card debt.

Household Debt Outstanding

trillions of US dollars — *share of disposable personal income*

	2022 Q3	2022 Q2	'22 Q3	'22 Q2	'19 Q3	'13 Q1	'03 Q1
Financial Accounts Total	$19.23T	$18.91T	103.2	102.9	99.2	112.8	109.3
Mortgage Debt Total	$12.35T	$12.15T	66.3	66.0	63.2	76.7	74.8
Consumer Credit	$4.68T	$4.58T	25.1	24.9	25.1	23.6	24.0
Other	$2.20T	$2.19T	11.8	11.9	10.9	12.5	10.5
Consumer Credit Panel Total	$16.51T	$16.15T	88.6	87.8	84.8	90.8	87.2
Mortgage Debt Total	$11.99T	$11.71T	64.4	63.7	59.7	68.6	62.5
Mortgage	$11.67T	$11.39T	62.6	61.9	57.3	64.1	59.6
Home Equity Revolving	$0.32T	$0.32T	1.7	1.7	2.4	4.5	2.9
Consumer Credit	$4.51T	$4.45T	24.2	24.2	25.0	22.2	24.7
Auto Loan	$1.52T	$1.50T	8.2	8.2	8.0	6.4	7.7
Credit Card	$0.93T	$0.89T	5.0	4.8	5.4	5.3	8.3
Student Loan	$1.57T	$1.59T	8.4	8.6	9.1	8.0	2.9
Other	$0.49T	$0.47T	2.6	2.6	2.6	2.5	5.8

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

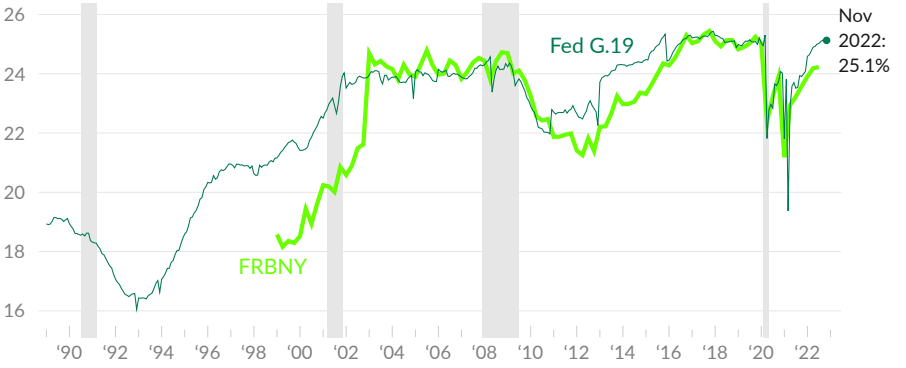
Consumer Credit

The Federal Reserve also report consumer credit on a monthly basis. In the monthly measure, consumer credit totals $4.76 trillion US dollars on a seasonally-adjusted and annualized basis in November 2022. Over the past year, consumer credit increased by 7.9 percent, while after-tax income increased by 3.2 percent. As a result, the ratio of consumer credit to disposable income increased by a total of 1.1 percentage points. In November 2022, total consumer credit is equivalent to 25.1 percent of annualized November 2022 disposable income (see —).

The latest comparable figure from the FRBNY data discussed in the previous section, which covers 2022 Q3, shows consumer credit is equivalent to 24.2 percent of annual disposable personal income (see —). Over the past year, the ratio increased by a total of one percentage point.

Consumer Credit

share of disposable personal income, percent



Source: Federal Reserve, FRBNY

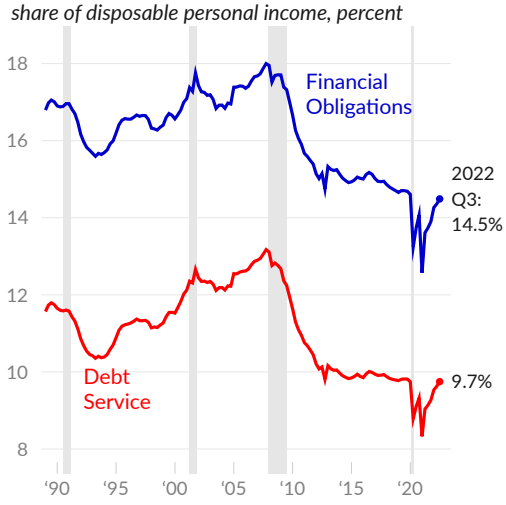
Financial Obligations

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 current aggregate financial burden facing households.

As of 2022 Q3, the **financial obligations ratio** is 14.5 percent (see —), and the **debt service ratio** is 9.7 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

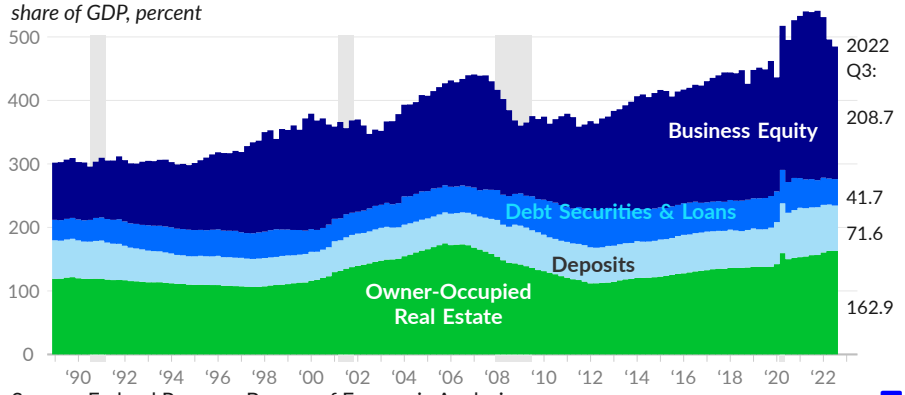
According to the US Financial Accounts produced by the Federal Reserve, the market value of **household and nonprofit assets** is $162.5 trillion in 2022 Q3, equivalent to 632 percent–or 6.32 years–of GDP. Of this, $54.8 trillion, or 33.7 percent of the total, are tangible (non-financial) assets and $107.7 trillion, or 66.3 percent, are financial assets.

Tangible assets include peoples' homes as well as consumer durable goods, such as cars, furniture, and appliances. Owner-occupied real estate is valued at $41.9 trillion in 2022 Q3, equivalent to 163 percent of GDP (see ■). The replacement value of consumer durable goods is $7.6 trillion, or 30 percent of GDP.

Financial assets include equity in businesses–corporate and non-corporate–with a market value of $53.7 trillion, or 209 percent of GDP (see ■), in 2022 Q3. Debt securities and loan assets total $10.7 trillion, or 42 percent of GDP (see ■). Cash and deposits, including money market accounts, total $18.4 trillion, or 72 percent of GDP (see ■). Other financial assets total $24.9 trillion.

Selected Household and Nonprofit Assets

share of GDP, percent

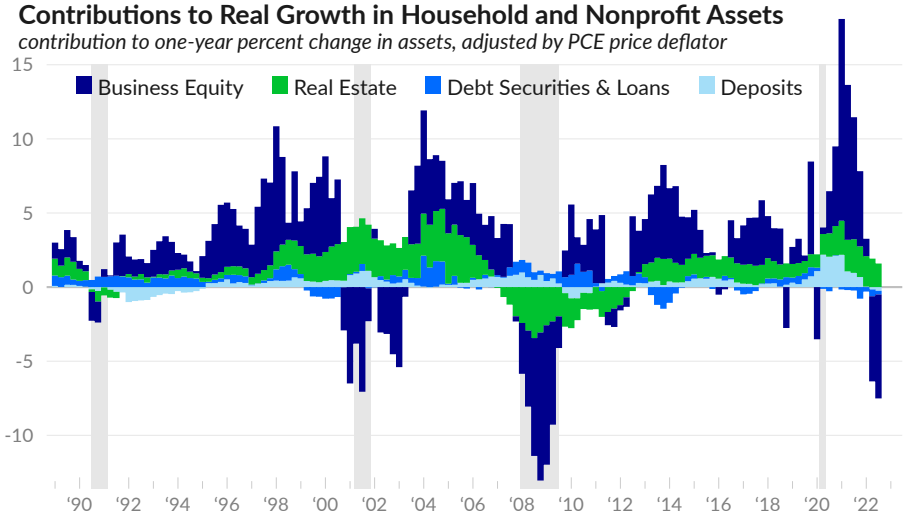


Source: Federal Reserve, Bureau of Economic Analysis

The value of household and nonprofit assets fell 6.4 percent over the year ending 2022 Q3. The decrease is driven largely by a decrease in the market value of business equity, and partially offset by an increase in the value of owner-occupied real estate.

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*		
	2022 Q3	2022 Q3	2021 Q3	One-year	Three-year	20-year
Total Assets	$162.5	631.8	693.3	-6.4	3.8	3.5
Non-financial assets	54.8	213.0	206.5	6.0	7.3	2.7
Owner-occupied real estate	41.9	162.9	156.3	7.1	7.9	2.8
Consumer durable goods	7.6	29.7	29.2	4.4	6.1	1.8
Nonprofit assets	5.2	20.4	20.9	0.2	3.9	3.9
Financial assets	107.7	418.8	486.8	-11.6	2.3	3.9
Deposits, incl. money market	18.4	71.6	75.2	-2.3	8.6	4.0
Debt securities and loans	10.7	41.7	44.5	-3.8	-3.4	2.9
Business equity	53.7	208.7	263.0	-18.5	3.1	5.1
Corporate equities	36.7	142.8	199.7	-26.5	1.0	6.0
Noncorporate business equity	16.9	65.9	63.3	7.0	8.5	3.7

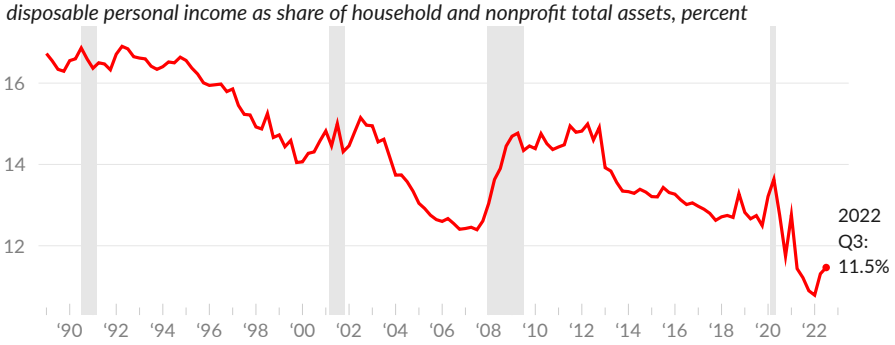
Source: Federal Reserve, Bureau of Economic Analysis

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. In 2022 Q3, disposable income is equivalent to 11.5 percent of the market value of US assets (see —), compared to an average of 16.0 percent during the 1990s.

Return on Household Assets

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



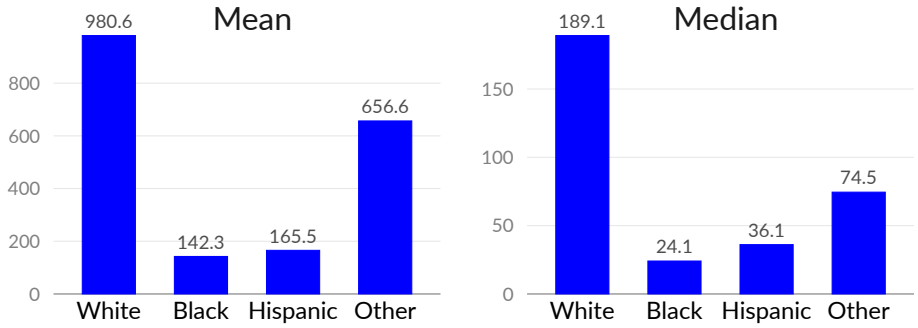
Source: Federal Reserve, Bureau of Economic Analysis

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



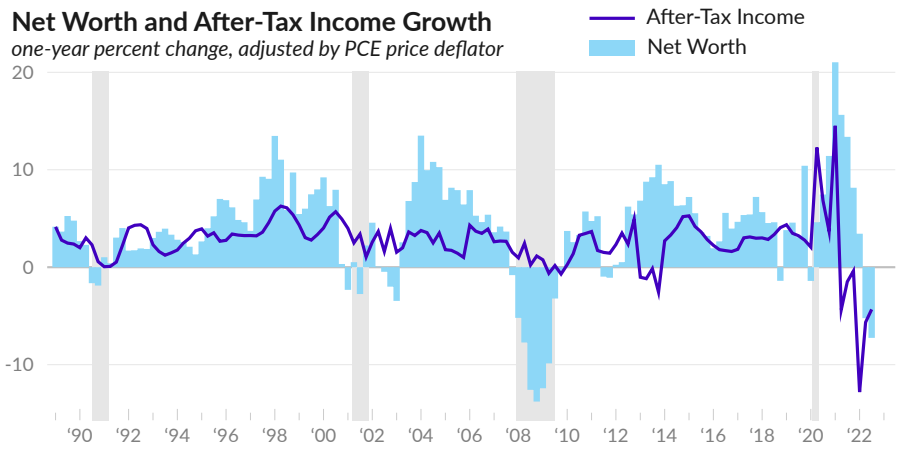
Source: Federal Reserve, Survey of Consumer Finances

Over the long run, 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 2022 Q3, household and nonprofit institution net worth was $143.3 trillion, equivalent to 7.7 years of disposable personal income; the result of total assets of $162.5 trillion and total liabilities of $19.2 trillion.

In 2022 Q3, inflation-adjusted net worth decreased by 7.2 percent (see), and inflation-adjusted after-tax income decreased by 4.3 percent (see –). Over the past three years, real net worth grew at an average rate of 6.5 percent, while real after-tax income grew at an average rate of 1.3 percent

Net Worth and After-Tax Income Growth

one-year percent change, adjusted by PCE price deflator



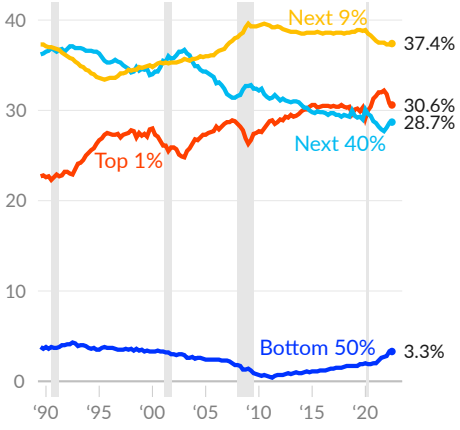
Source: Federal Reserve, Bureau of Economic Analysis

The Federal Reserve report net worth by percentile. The top one percent of households by wealth own 30.6 percent percent of US wealth, as of 2022 Q3 (see —), while the top 10 percent of households own 68.0 percent percent. The bottom half of households own 3.3 percent percent of US wealth (see —).

Since 1989, the wealth share of the top one percent increased 7.9 percentage points, while the share held by the bottom 50 percent decreased 0.4 percentage point. The wealth share of the 40 percent of households in wealth percentiles 50 through 90 decreased 7.6 percentage points since 1989.

Share of US Wealth

share of total net worth, by percentile, percent



Source: Federal Reserve

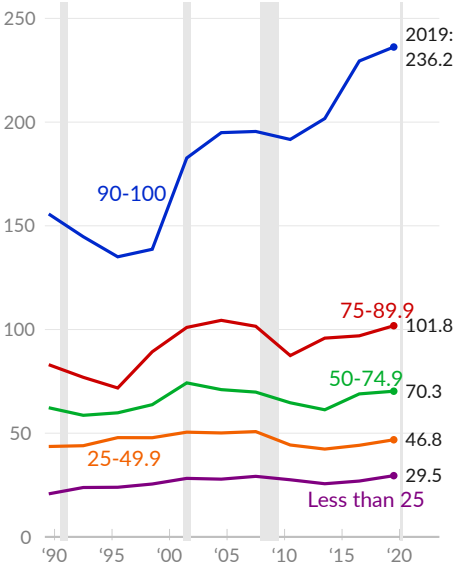
Wealth and Income

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 inflation. 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)

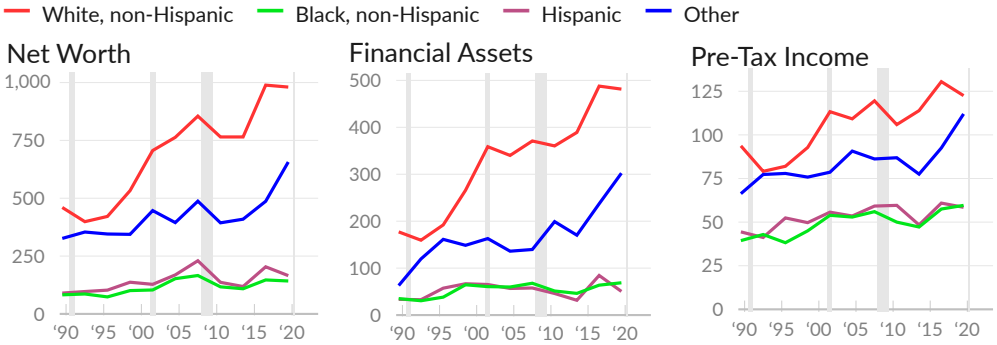
In contrast, families in the third quartile of wealth (50th to 74.9th percentiles, mean wealth of $700,000 in 2019, see —) have a median income of $70,250 in 2019 and $62,277 in 1989, an increase of $7,973 (12.8 percent).

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 average wealth of the bottom quarter of families is negative in 2019 and the median wealth is 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.

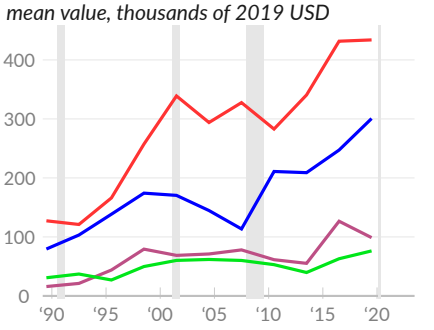
Measures of Wealth and Income by Race or Ethnicity
by family, mean, thousands of 2019 USD



Source: Federal Reserve

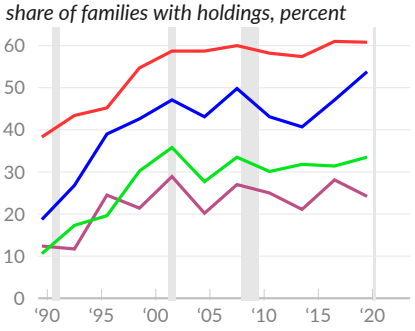
In 2019, among the 60.8 percent of white families who own stocks, the average value of stock holdings is $433,900. The return on these assets is a supplement to labor income and the assets themselves provide cushion against unexpected expenses. Meanwhile, black families have relatively few financial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

Stock Holdings
mean value, thousands of 2019 USD



Source: Federal Reserve

Stock Holdings
share of families with holdings, percent



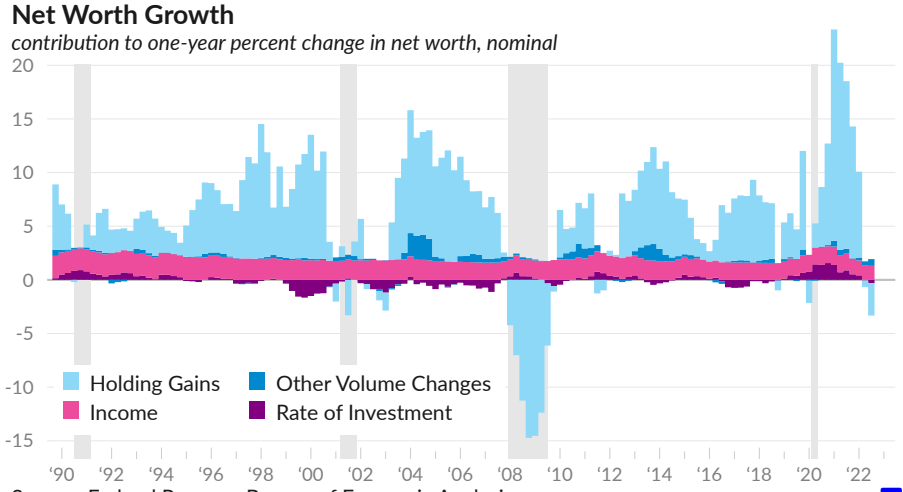
Source: Federal Reserve

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 2022, holding gains subtracted three percentage points from the -1.4 percent change in net worth. Income invested at the 1989-onward average rate of 10.3 percent would have contributed 1.3 percentage points, but 0.3 percentage points were subtracted as household net investment was 7.9 percent of disposable person income in 2022 Q3. Other volume changes contributed 0.6 percentage point.

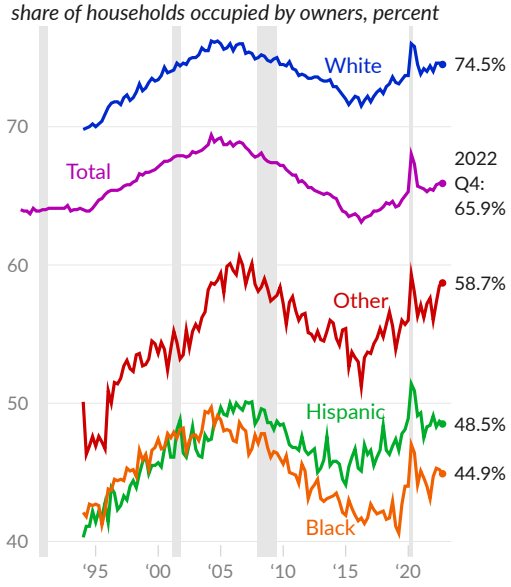
Over the past three years, net worth grew at an average rate of 10.0 percent. Holding gains contributed 7.4 percentage points to this total, on average; net investment of income contributed 2.3 percentage points; and other volume changes contributed 0.3 percentage point.

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 2022 Q4, the Census Bureau report a homeownership rate of 65.9 percent (see —). Over the past three years, the overall US homeownership rate increased by a total of 0.9 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 (74.5 percent in 2022 Q4) 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. Black homeownership peaked at 49.7 percent in the second quarter of 2004 but fell to 40.6 percent in 2019 Q2. The 2022 Q4 rate is 44.9 percent (see —). The 2022 Q4 rate for Hispanic households is 48.5 percent, substantially below the 50.1 percent rate in 2007 Q1 (see —).

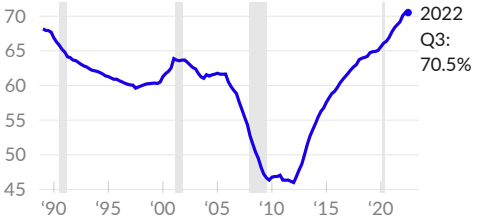
Use caution when interpreting homeownership rates during the COVID-19 pandemic. Individuals who are renters or homeowners are captured by the measure, but when an individual moves in with family and stops being a head of household, they are dropped from the measure. Therefore when renters move in with family the homeownership rate increases. The 2020 spike in homeownership rates reflects renters moving in with family.

As seen during the collapse of the housing bubble, it is possible for a homeowner to have no equity in their home, for example if the market price of the home falls below the principal remaining on the mortgage. Owners' equity in their homes has increased substantially since the collapse of the housing bubble.

As of 2022 Q3, the Federal Reserve report **owners' equity** is 70.5 percent of residential real estate (see —). Over the past three years, the owners' equity share increased by a total of 5.6 percentage points. Over the past year, the share increased by a total of 1.8 percentage points. The current share is substantially above the 1989 average of 67.9 percent.

Owners' Equity Share of Real Estate

owners' equity as percent of real estate



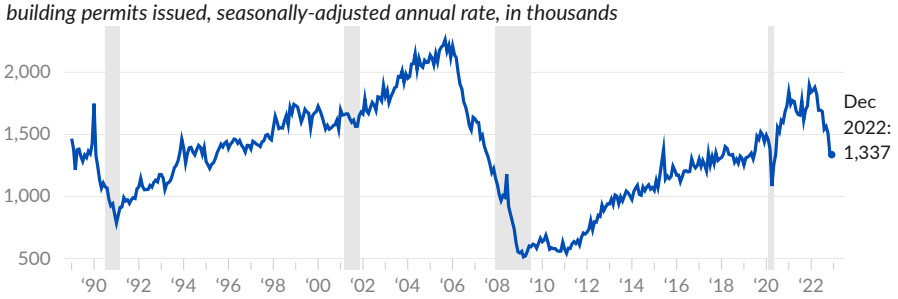
Source: Federal Reserve

Housing Construction

The Census Bureau tracks the issuance of **new residential building permits**, which offer insight into planned residential construction. In December 2022, a seasonally-adjusted annual rate of 1,337,000 new residential housing units were authorized by building permits, the lowest level since May 2020 (see —). Permits issued decreased by 14,000 (-1.0 percent) (annualized) over the previous month, decreased by 559,000 (-29.5 percent) over last December, and increased by 33,000 (2.5 percent) total over the past five years.

Residential Construction Permits

building permits issued, seasonally-adjusted annual rate, in thousands

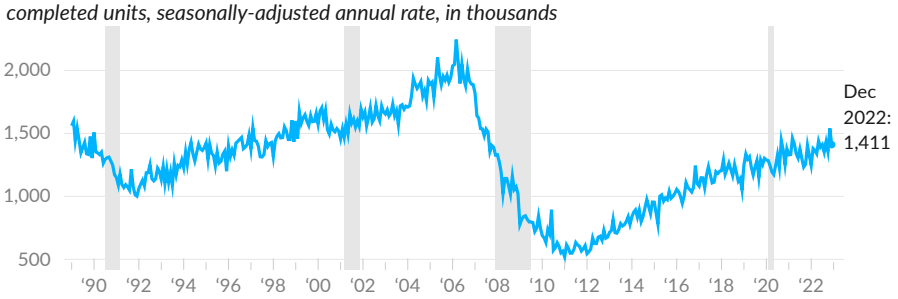


Source: Census Bureau

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 2022, a seasonally-adjusted annual rate of 1,411,000 new residential units were completed (see —), compared to 1,540,000 in November and 1,357,000 in December 2021.

Residential Construction Completions

completed units, seasonally-adjusted annual rate, in thousands

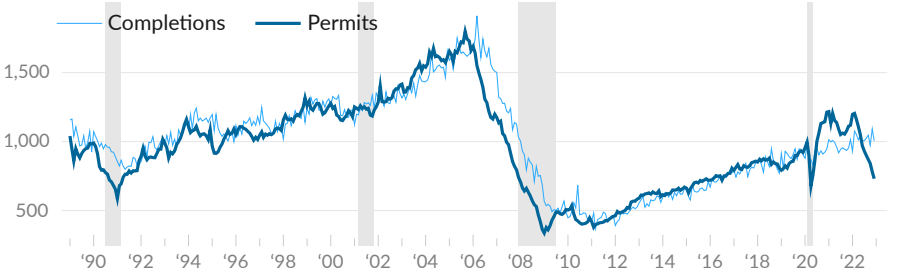


Source: Census Bureau

In December 2022, a seasonally-adjusted annual rate of 731,000 new single-family residential units were permitted and 1,005,000 were completed.

Single-Family Units

permits and completions, seasonally-adjusted annual rate, in thousands

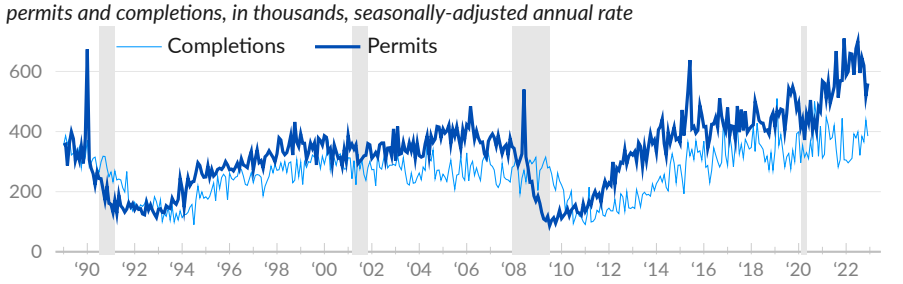


Source: Census Bureau

In December 2022, a seasonally-adjusted annual rate of 560,000 new multi-family residential units were permitted and 385,000 were completed.

Multi-Family Units

permits and completions, in thousands, seasonally-adjusted annual rate



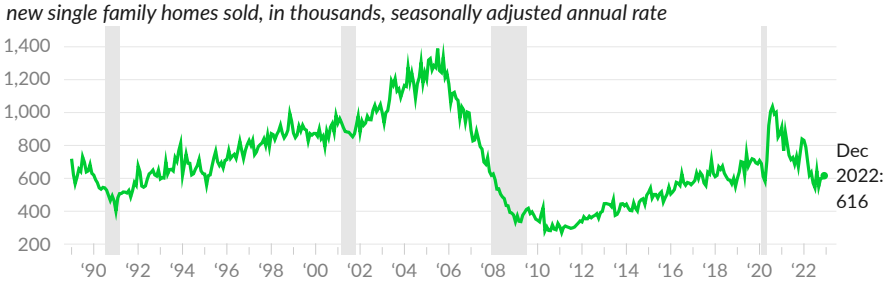
Source: Census Bureau

New Residential Sales

In December 2022, seasonally-adjusted **annualized sales** of new single-family homes total 616,000 (see —), as reported by the Census Bureau. Over the past year, new home sales decreased 0.3 percent. Pre-COVID, in February 2020, the annualized rate of single family new home sales was 690,000. Since February 2020, new home sales have decreased 10.7 percent.

New Home Sales

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

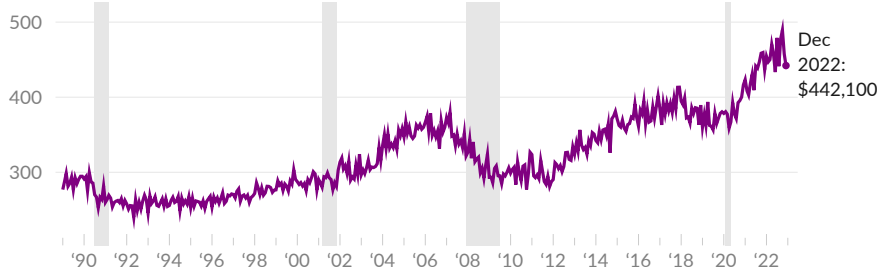


Source: Census Bureau

The Census Bureau also tracks the **sales price** of new single-family homes. In December 2022, the median new home sold for $442,100 (see —), and the average sales price was $528,400. The inflation-adjusted median sales price has increased 1.3 percent over the past year, and increased 16.2 percent over the past three years. Since 1989, the inflation-adjusted median new home sales price increased 59.6 percent.

New Home Sales Price

real median sales price, in thousands of December 2022 dollars

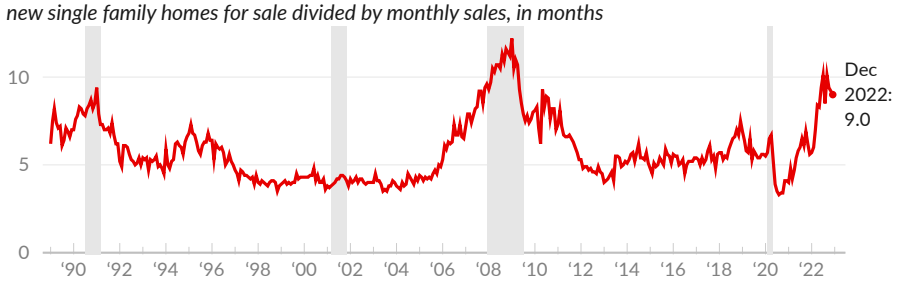


Source: Census Bureau, Bureau of Labor Statistics

The **inventory** of new homes for sale affects housing prices. The Census Bureau report a seasonally-adjusted total of 461,000 new houses for sale in August 2022, an increase of 87,000 since August 2021. At the current pace of new home sales, it would take 9.0 months to exhaust the supply of unsold homes (see —). Current inventory levels are substantially above both the year-prior supply of 5.6 months and the long-term average supply of 5.8 months.

Months' Supply

new single family homes for sale divided by monthly sales, in months

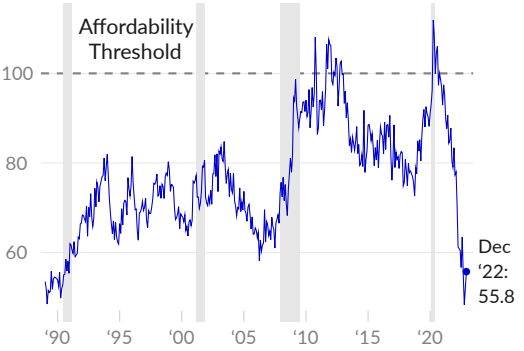


Source: Census Bureau

The monthly payment associated with new single-family home sales typically reflects both the sales price and the current mortgage interest rate. The monthly principal and interest payment for a 30-year fixed-rate mortgage on the median new home sold is $2,479, as of of December 2022, compared to an average of $2,695 over the past three months, and an average of $1,361 in 2019.

New House Affordability

index, new house monthly principal and interest payment relative to 1/3rd median usual full-time earnings,



Source: Author's Calculations

The **affordability of a new house** depends on both the monthly payment and people's ability to make the payment, usually determined by their income. New homes are affordable when the monthly payment is a third of income, or less.

The new house affordability index (see —) compares the monthly payment with one-third of the median full-time wage. The median full-time wage is sufficient to afford the median new home when index values are 100 or greater.

New House Affordability

index components

	Jan '23	Dec '22	Nov '22	Oct '22	Dec '21	2019
Affordability Index	–	55.8	52.1	48.4	83.4	87.6
Monthly Payment ($)	–	2,479	2,694	2,912	1,575	1,361
Median Home Price ($)	–	442,100	459,000	491,300	410,000	319,267
Mortgage Rate (%)	6.27	6.36	6.80	6.90	3.10	3.93
Median Monthly Earnings ($)	–	4,603	4,679	4,689	4,375	3,964

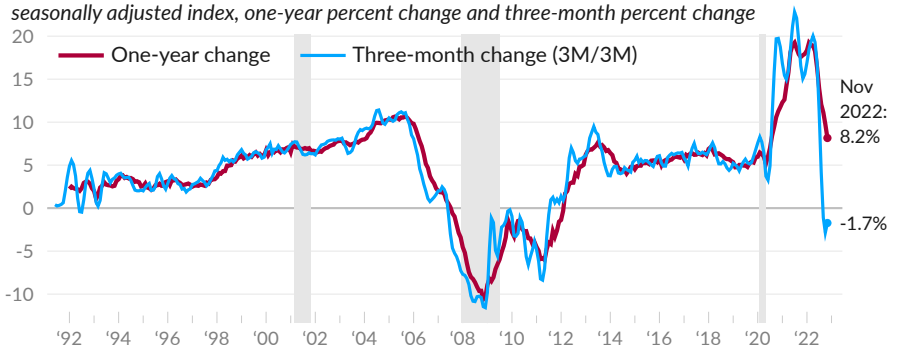
Source: Author's Calculations, Census Bureau, Freddie Mac, CPS
See also the more-comprehensive Home Ownership Affordability Monitor from the Federal Reserve Bank of Atlanta.

Housing Prices

The Federal Housing Finance Agency (FHFA) **house price index** measures changes in the price of the same home. The seasonally-adjusted index increased 8.2 percent over the year ending November 2022 (see —). The average of the latest three months of data compared to the previous three months shows an annualized growth rate of -1.7 percent (see —). In October 2022, the one-year growth rate was 9.8 percent and the three-month growth rate was -2.9 percent. Home prices in the South Atlantic region, which includes the District of Columbia, Delaware, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, and West Virginia, increased 12.0 percent in November 2022, the highest one-year growth rate.

House Price Index

seasonally adjusted index, one-year percent change and three-month percent change



Source: Federal Housing Finance Agency

House Price Growth

seasonally adjusted, one-year percent change

	Nov '22	Oct '22	Sep '22	Aug '22	Nov '21	Nov '20	Nov '19	'03–'05 Average	'09–'12 Average
South Atlantic	12.0	14.1	15.6	16.2	20.8	11.4	5.7	11.3	-3.7
West South Central	9.5	10.9	11.1	13.6	18.5	9.1	3.8	4.3	0.3
East South Central	9.1	11.9	14.5	14.2	19.8	11.7	4.5	5.1	-1.6
Middle Atlantic	8.7	9.0	10.3	10.8	13.8	11.3	4.5	11.3	-2.3
New England	8.4	10.2	9.1	12.0	15.8	12.9	5.3	10.3	-2.2
West North Central	8.3	8.6	9.8	10.5	13.5	10.1	5.2	5.4	-1.2
United States	8.2	9.8	11.1	12.1	17.8	11.3	5.3	9.2	-2.5
East North Central	8.0	8.8	10.3	10.7	14.1	10.6	6.1	4.3	-2.4
Mountain	5.4	7.9	9.4	10.9	23.3	14.1	6.8	11.0	-4.2
Pacific	2.4	4.8	7.2	7.7	19.2	12.2	5.2	18.3	-3.9

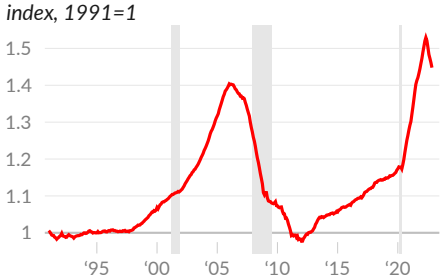
Source: Federal Housing Finance Agency

The purchase price of housing should move with the rental price. 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 2022, housing prices are 44.8 percent above the rental equivalent (see —).

Housing Price to Rent Ratio

index, 1991=1

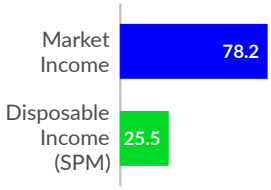


Source: FHFA, BLS

Poverty

In 2021, income from labor and capital ownership, called *market income*, was below the Census Bureau threshold for poverty for 78.2 million people in the US, equivalent to 23.8 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), **25.5 million people are in poverty** based on their disposable income, equivalent to 7.8 percent of the population. Government programs and tax credits moved the income of 52.7 million people above the poverty threshold.

In Poverty, 2021
millions of people

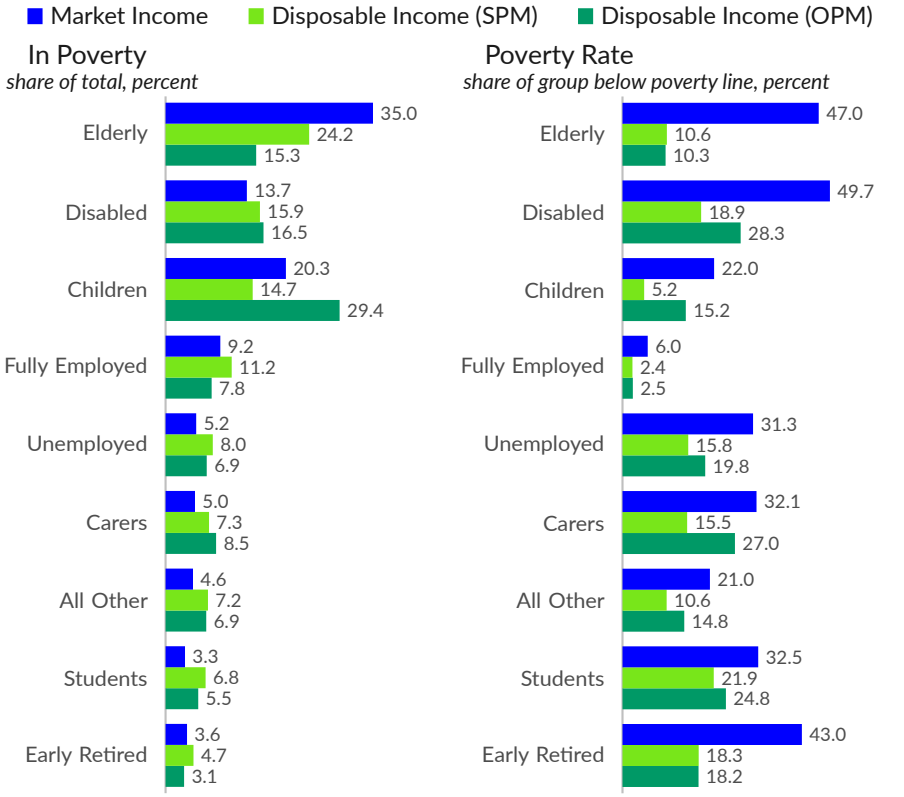


Source: CPS ASEC

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 69.0 percent of those in poverty in 2021. 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.

Poverty Measures, 2021



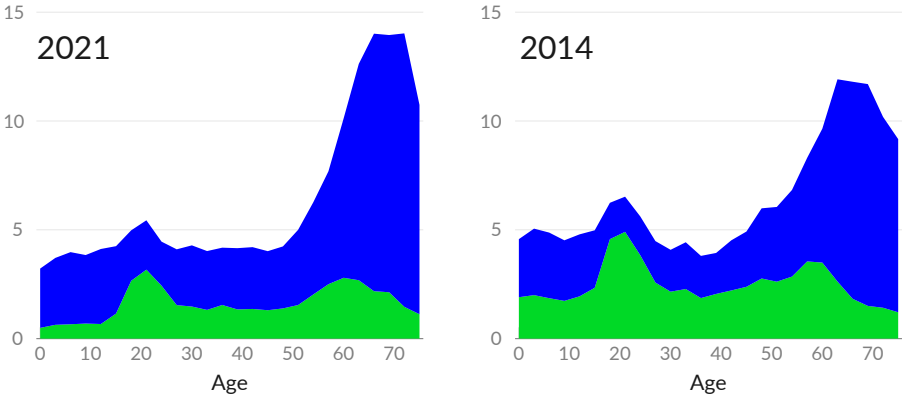
Source: CPS ASEC, Author's Replication of Bruenig, see
OPM is the Official Poverty Measure, and SPM is the Supplemental Poverty Measure. See text for description.

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 2021, students, caregivers, and the disabled had the highest poverty rates. The poverty rate is low for the fully-employed.

By age, market income (see ■) leaves the elderly particularly vulnerable to poverty, as they are not as likely to have labor income. However, after social benefits and taxes (disposable income, see ■), the elderly have much lower rates of poverty than other age cohorts. Even after transfers, young people and those just below social security and medicare age (late 50s and early 60s) remain particularly vulnerable to poverty, relative to other ages.

Amount of Poverty by Age ■ Market Income ■ Disposable Income (SPM)

in billions of 2021 US dollars



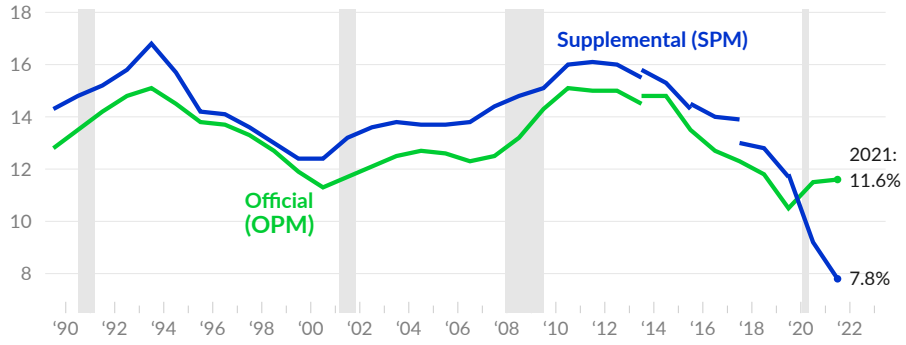
Source: CPS ASEC, 2014 adjusted for inflation with CPI-U-RS

Since 1989, the official poverty measure (see —) shows between 10.5 percent and 15.1 percent of people in poverty, with an average poverty rate of 13.0 percent during the period. Poverty rates were above average after the recession of 1991 and after the great recession, and below average around 2000.

In 2019, both the official US poverty measure and the more-comprehensive supplemental measure (see —) reached a new low. In 2021, the supplemental poverty measure fell further, to a new low of 7.8 percent, while the official measure increased. The official poverty rate does not include stimulus checks, housing assistance, or tax credits, while the supplemental rate does.

Poverty Rates

in poverty, share of population, percent



Source: Census Bureau

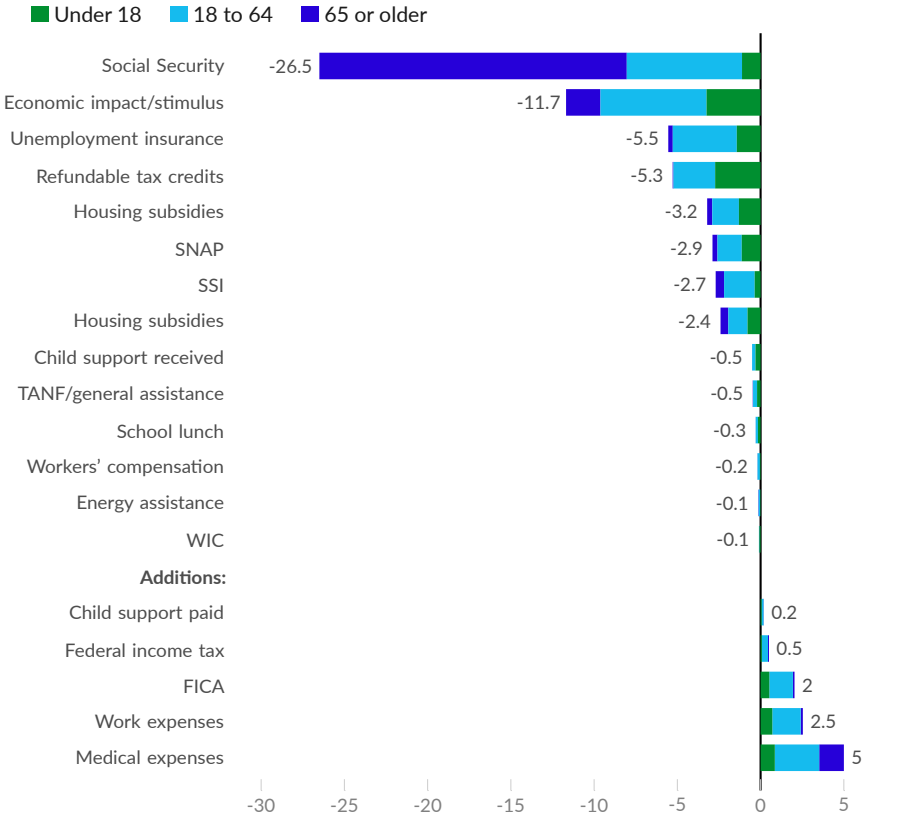
The Census Bureau report **the number of people taken out of poverty by various programs**, along with how many people are put in poverty by various expenses. In 2020, Social Security payments lift income above the poverty line for 26.5 million people, by far the most effective program for reducing poverty.

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 people in poverty.

Effect of Individual Elements on Poverty Headcount

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



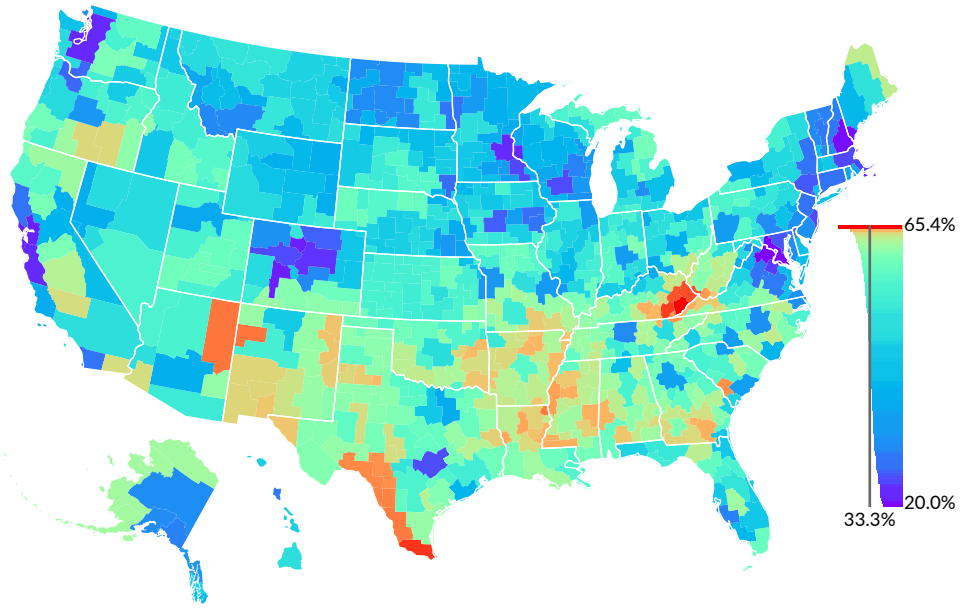
Source: Census Bureau Supplemental Poverty Measure

Poverty can be geographically concentrated. In the United States, some regions have particularly high and persistent poverty rates. In 2020, one third of people in the US have income below $21,495. In some regions of the US, more than half of the population has income below this threshold.

Dividing the US into 741 commuter zones, 66 of these zones, covering 3.4 million people, have a majority of the population in bottom third of US income. Among the most extreme examples are Brownsville, TX (62.3 percent), Corbin, KY (61.9 percent), Pikeville, KY (60.9 percent), and Gallup, NM (58.5 percent).

Low-Income Share of Commuter Zone, 2021

Share of commuting zone householders with income below $21,495



Source: American Community Survey, Author's Calculations

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 private businesses.

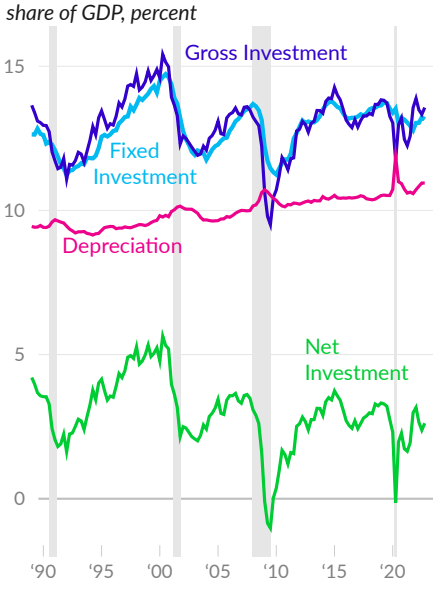
Investment

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 2022, gross private business investment totals $3,546 billion on a seasonally-adjusted annualized basis, equivalent to 13.6 percent of GDP (see —). Private business investment in fixed assets totals $3,439 billion, or 13.2 percent of GDP (see —). Private business depreciation totals $2,862 billion in the quarter, or 11.0 percent of GDP (see —). As a result, net investment is $684 billion, or 2.6 percent of GDP (see —).

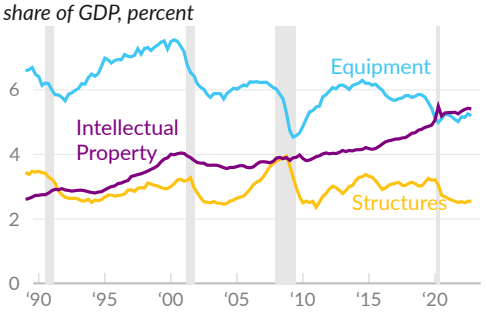
In 2019 Q4, prior to the COVID-19 pandemic, private business gross investment was $2,880 billion. Since 2019 Q4, annualized gross investment increased 23.1 percent. Net investment was $596 billion in 2019 Q4, and increased 14.7 percent from 2019 Q4 to 2022 Q4, as gross investment recovered from its pandemic 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 $666 billion in 2022 Q4, equivalent to 2.5 percent of GDP (see —). Equipment investment was $1,360 billion or 5.2 percent of GDP (see —), and intellectual property investment was $1,413 billion or 5.4 percent of GDP (see —).

Business Fixed Investment by Type

share of GDP, percent



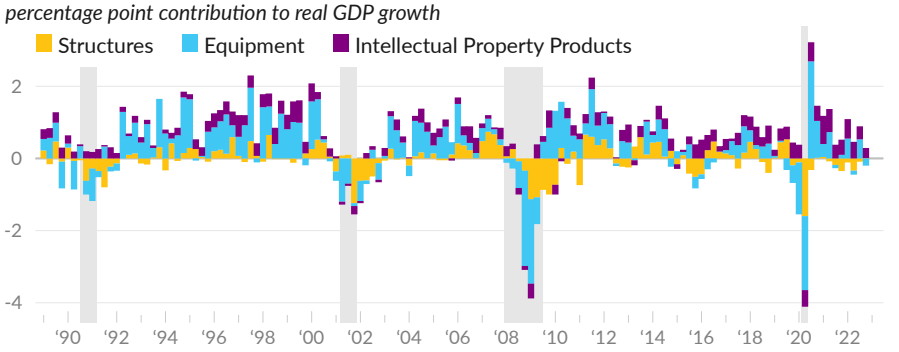
Source: Bureau of Economic Analysis

Contribution to Growth

Business fixed investment contributed 0.09 percentage point to GDP growth in 2022 Q4, slightly below the average contribution of 0.27 percentage point over the three years prior to the pandemic. In 2022 Q4, investment in structures contributed 0.01 percentage point to GDP growth (see), investment in equipment subtracted 0.20 percentage point (see), and investment in intellectual property products contributed 0.28 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 — *moving averages*

	2022 Q4	'22 Q3	'22 Q2	'22 Q1	'21 Q4	3-year	10-year	30-year
Total	0.09	0.80	0.01	0.98	0.17	0.27	0.47	0.57
Structures	0.01	-0.09	-0.34	-0.11	-0.35	-0.25	-0.02	0.01
Equipment	-0.20	0.53	-0.11	0.55	0.10	0.12	0.17	0.32
Information processing	-0.47	0.16	-0.12	0.29	0.34	0.08	0.10	0.20
Computers and peripherals	-0.25	0.19	-0.15	0.12	0.07	0.03	0.02	0.11
Industrial equipment	0.03	-0.15	-0.08	0.15	0.13	0.02	0.03	0.03
Transportation equipment	0.30	0.63	0.10	-0.03	-0.34	0.03	0.04	0.06
Intellectual property products	0.28	0.36	0.46	0.54	0.42	0.40	0.31	0.24
Software	0.28	0.32	0.22	0.38	0.10	0.25	0.17	0.14
Research and development	-0.02	-0.03	0.15	0.14	0.23	0.14	0.12	0.08

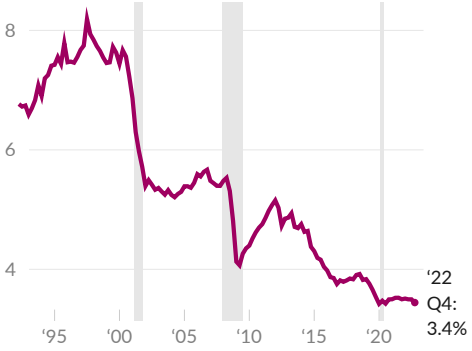
Source: Bureau of Economic Analysis

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 the Census Bureau survey of shipments, inventories, and orders.

New orders for manufactured core capital goods excluding aircraft totaled $75 billion in December 2022, equivalent to 3.4 percent of GDP (see —). New orders increased 5.2 percent over the past year, and increased by 22.3 percent since February 2020.

New Orders for Core Capital Goods

nondefense capital goods ex-aircraft, share of GDP



Source: Census Bureau

Inventories

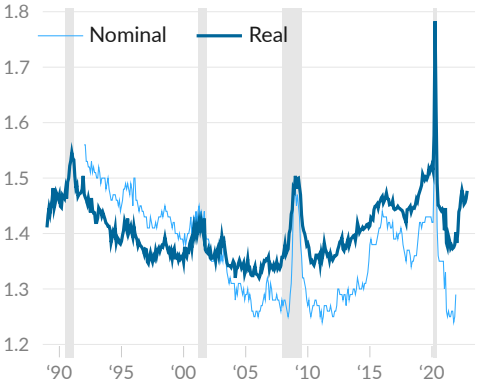
In the national accounts, **inventories** are the stock of goods held by firms. Inventories include goods for sale, as well as goods used in production and sales, and goods requiring further processing prior to sale. When economic activity is measured using spending on final goods, it must be adjusted for changes in inventories. For example, increased inventories mean goods were produced but not sold, and therefore are not captured in consumer spending or investment.

One tool for measuring changes in inventories is the inventories-to-sales ratio. The Bureau of Economic Analysis 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 the period.

Inventories to Sales Ratio

total business



Source: FRED, BEA

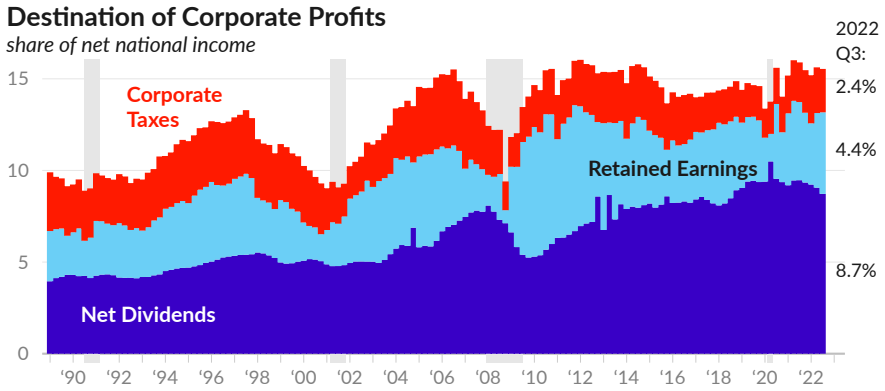
Census report the nominal **ratio of inventories to sales** for the total business sector (see —). In November 2022, the ratio of total business inventories to sales was 1.35, compared to 1.33 in October 2022, 1.26 in November 2021, and 1.42 in February 2020.

The inflation-adjusted version from BEA shows inventories at 1.48 times sales in November 2022, following a ratio of 1.33 in October 2022, and 1.38 one year prior, in November 2021. In 2019, real monthly inventories were 1.50 times real monthly sales, on average.

Corporate Profits

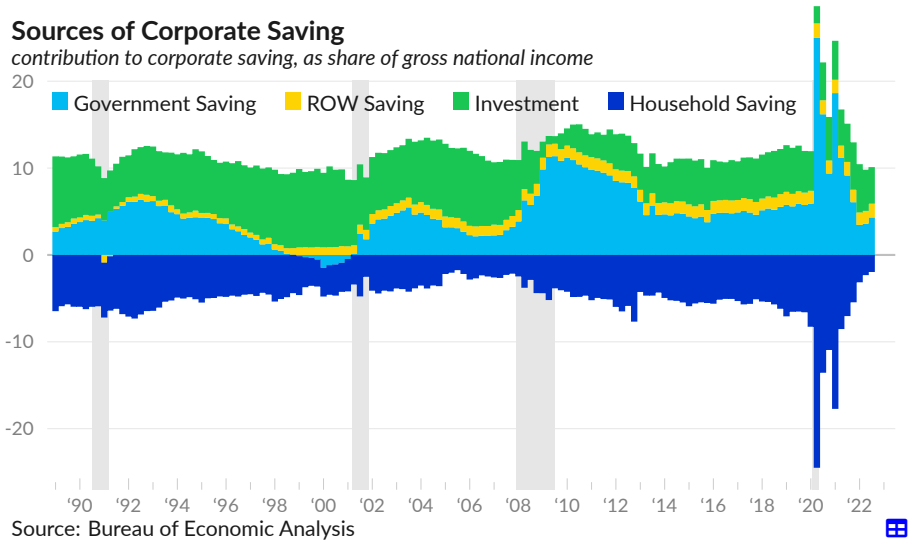
The national accounts include detailed information on **aggregate corporate profits**. In the third quarter of 2022, corporate profits were $3.00 trillion, equivalent to 15.5 percent of the income paid to US nationals after depreciation costs (net national income). Of this, $1.68 trillion, equivalent to 8.7 percent of net national income, were paid out as dividends (see ■), $859 billion were retained (corporate saving, see ■), and $457 billion, 15.2 percent of corporate profits, went to corporate income tax (see ■).

In 2019, corporate profits were 14.6 percent of net national income. Dividends were equivalent to 9.3 percent, corporate savings were 3.5 percent, and corporate income taxes were 1.8 percent of net national income and 12.4 percent of corporate profits.



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.



Source: Bureau of Economic Analysis

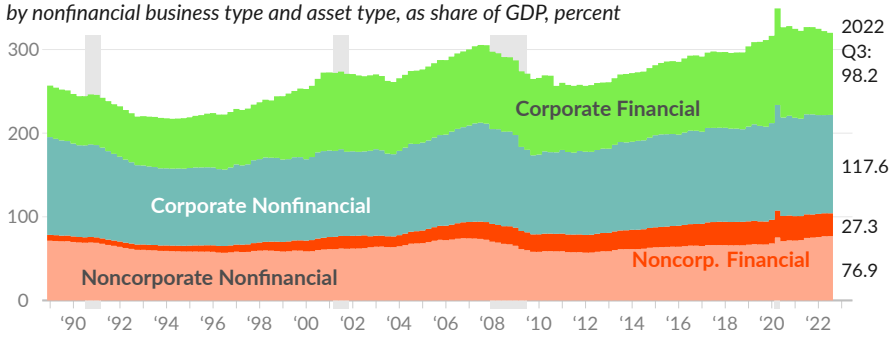
Business Assets

Combined **assets of nonfinancial businesses** are valued at $82.3 trillion in the third quarter of 2022, equivalent to 319.9 percent of GDP. These include financial assets and nonfinancial assets. Financial assets include cash and deposits, equity in other businesses, trade receivables, and other financial assets, and total $32.3 trillion. Nonfinancial, or tangible, assets include real estate, equipment, inventories, and intellectual property products, and total $50.0 trillion.

Nonfinancial corporations have assets valued at $55.5 trillion, or 215.8 percent of GDP. These include nonfinancial assets (see) valued at 117.6 percent of GDP and financial assets (see) valued at 98.2 percent, as of 2022 Q3. Noncorporate business assets are valued at $26.8 trillion, equivalent to 104.2 percent of GDP. Tangible assets (see) are equivalent to 76.9 percent of GDP, and include $10.8 trillion in rental housing. Financial assets for the sector (see) are equivalent to 27.3 percent of GDP.

Business Assets

by nonfinancial business type and asset type, as share of GDP, percent



share of GDP, percent

	2022 Q3	'22 Q2	'22 Q1	'21 Q3	'19 Q4	2010	1989
Corporate Total	215.8	217.8	221.3	223.8	216.9	185.5	175.7
Nonfinancial Assets ( )	117.6	117.4	118.1	119.6	113.4	97.1	114.7
Real Estate	66.2	65.7	67.1	69.4	64.1	48.8	61.7
Equipment	24.1	24.1	23.9	23.9	24.2	25.1	29.9
IP Products	13.8	13.8	13.7	13.7	12.9	11.4	7.7
Inventories	13.4	13.8	13.4	12.6	12.2	11.9	15.4
Financial Assets ( )	98.2	100.4	103.1	104.3	103.6	88.3	61.0
Noncorporate Total	104.2	104.2	103.5	102.9	94.4	79.6	77.9
Nonfinancial Assets ( )	76.9	76.7	75.8	74.7	66.8	58.7	71.0
Real Estate	69.3	69.4	68.7	68.0	60.2	51.4	62.0
Residential	41.9	42.2	41.2	39.8	34.0	29.2	34.9
Equipment	4.9	4.7	4.4	4.1	4.1	4.5	5.8
IP Products	1.5	1.5	1.4	1.4	1.4	1.3	0.7
Inventories	1.2	1.2	1.2	1.2	1.2	1.5	2.5
Financial Assets ( )	27.3	27.5	27.7	28.2	27.5	20.9	6.9

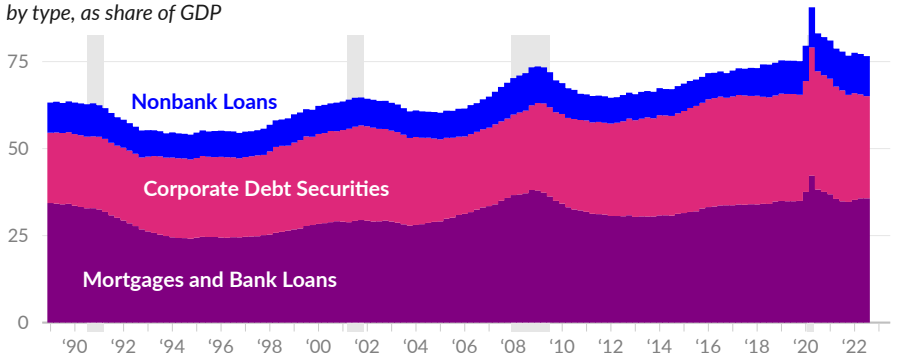
Source: Federal Reserve, Bureau of Economic Analysis
Notes: Includes only nonfinancial businesses. Tangible assets are market values or current replacement values.

Business Debt

As of 2022 Q3, **nonfinancial business debt**–the debt security and loan liabilities of nonfinancial businesses–both corporate and non-corporate–totals $19,700 billion, with $12,691 billion (64.4 percent) 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 1.3 percentage points to 76.6 percent in 2022 Q3 from 75.2 percent in 2019 Q3. The vast majority of the increase, 1.9 percentage points, comes from nonbank loans (see ■).

Nonfinancial Business Debt

by type, as share of GDP



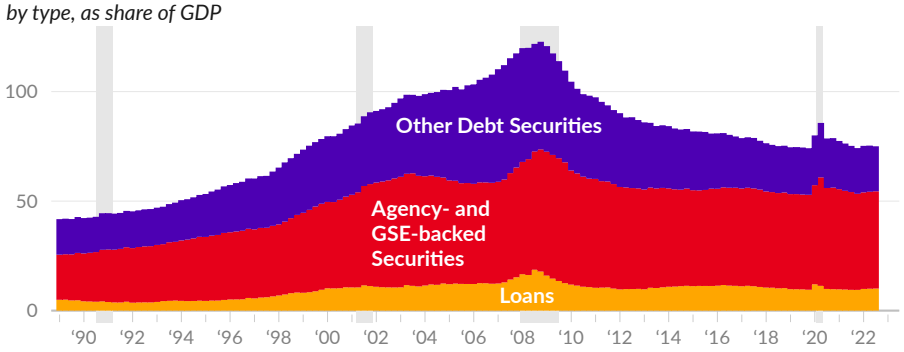
Source: Federal Reserve, Bureau of Economic Analysis

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 75.0 percent in 2022 Q3 from a housing-bubble peak of 122.7 percent in 2008 Q4.

Financial Sector Debt

by type, as share of GDP



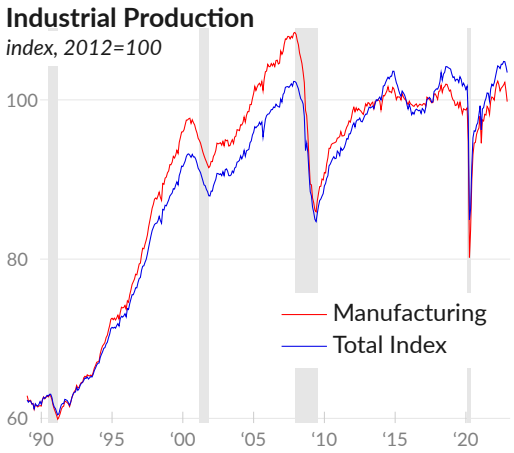
Source: Federal Reserve, Bureau of Economic Analysis

Industrial Production

The Federal Reserve industrial production index measures the real output of the industrial sector, which includes manufacturing, mining, and electric and gas utilities.

Industrial production increased 1.6 percent over the year ending December 2022, following an increase of 2.2 percent in November. The manufacturing-only index decreased 0.5 percent over the year ending December, and subtracted 0.3 percentage point from the growth of the total index. Mining contributed one percentage point, and utilities contributed one percentage point.

By market group, finished consumer goods contributed 0.5 percentage point to one-year industrial production growth in December. Business equipment contributed 0.5 percentage point, nonindustrial supplies subtracted 0.1 percentage point, and materials contributed 0.8 percentage point.



Source: Federal Reserve

Industrial Production Growth

one-year growth, seasonally-adjusted	*contribution to total* Dec '22	Nov '22	Oct '22	Dec '21	*rate, percent* Dec '22	Nov '22	Oct '22	Dec '21
Total index	1.6	2.2	3.4	3.7	1.6	2.2	3.4	3.7
Manufacturing	-0.3	0.5	1.7	2.9	-0.5	0.7	2.4	3.9
Durable manufacturing	0.3	0.7	1.5	1.8	0.8	2.0	4.1	4.8
Motor vehicles & parts	0.2	0.3	0.5	-0.2	5.1	5.3	10.4	-4.3
Nondurable manufacturing	-0.6	-0.1	0.3	1.3	-1.7	-0.3	1.0	3.6
Mining	1.0	1.2	1.6	1.6	5.8	6.8	8.5	9.5
Utilities	1.0	0.4	0.1	-0.4	9.7	4.2	1.1	-4.0
Consumer goods	0.5	0.4	0.7	0.1	1.7	1.5	2.6	0.4
Consumer durables	-0.0	0.0	0.3	-0.0	-0.5	0.3	4.5	-0.7
Automotive products	0.1	0.1	0.3	-0.2	3.9	2.9	9.0	-6.6
Consumer nondurables	0.5	0.4	0.4	0.2	2.4	1.9	2.1	0.8
Foods and tobacco	0.0	0.1	0.1	-0.0	0.1	0.9	1.6	-0.5
Chemical products	0.1	0.1	0.1	0.3	1.3	2.1	3.1	6.1
Consumer energy products	0.5	0.2	0.1	-0.1	9.3	4.4	2.8	-1.6
Business equipment & supplies	0.4	0.7	1.2	1.6	1.4	2.8	4.4	6.1
Equipment	0.5	0.7	0.9	1.1	4.4	6.4	8.4	9.6
Industrial equipment	0.0	0.1	0.1	0.4	0.2	2.2	4.5	12.5
Nonindustrial supplies	-0.1	0.0	0.2	0.5	-0.8	0.1	1.4	3.6
Construction supplies	-0.1	-0.0	0.1	0.3	-2.1	-0.6	1.2	5.6
Business supplies	-0.0	0.0	0.2	0.3	-0.1	0.4	1.6	2.5
Materials	0.8	1.1	1.6	2.1	1.7	2.3	3.3	4.4
Consumer parts	0.1	0.1	0.1	0.0	1.9	3.9	4.8	0.9
Equipment parts	-0.0	0.0	0.1	0.4	-0.7	0.7	2.4	8.7
Chemical materials	-0.3	-0.2	-0.1	0.4	-5.5	-3.3	-2.1	6.3
Energy materials	1.3	1.1	1.3	1.0	6.1	5.4	6.0	5.0

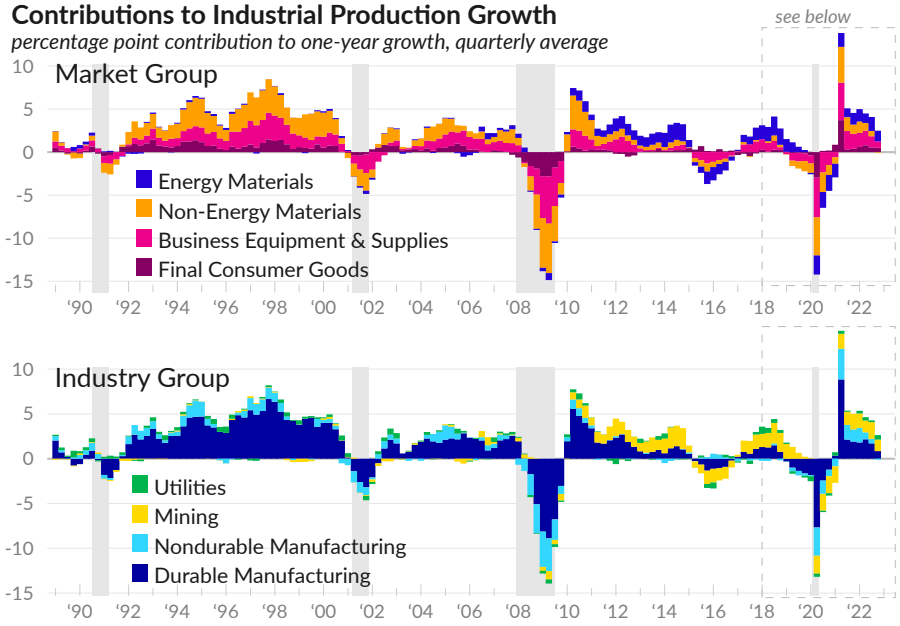
Source: Federal Reserve

Over the past 30 years, economic conditions and shifts in how production is organized have affected industrial growth. Much of the growth over the period is attributed to the production of materials, such as parts, chemicals, and energy, and to the production of business equipment and supplies. In contrast, there has been virtually no growth in domestic production of finished consumer goods, particularly from 2000 to 2020.

While the manufacturing industry dominated industrial growth in the 1990s, mining and utilities have played a relatively larger role since 2010. Manufacturing growth was relatively weak from 2013 to 2020, but increased starting in 2021.

Contributions to Industrial Production Growth

percentage point contribution to one-year growth, quarterly average

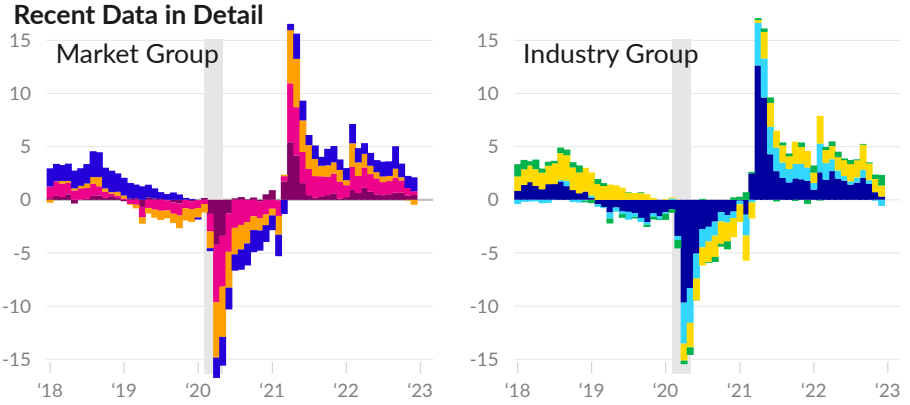


Source: Federal Reserve

Looking more closely at recent industrial production growth, the latest one-year growth rate, covering December 2022, is slightly above the five-year average, and slightly below the November growth rate.

By market group, the latest growth is relatively broad-based. The main contribution, an increase in energy materials, is partially offset by a decrease in non-energy materials. By industry group, the latest growth is driven by an increase in mining and electric and gas utilities, and partially offset by a decrease in nondurable manufacturing.

Recent Data in Detail



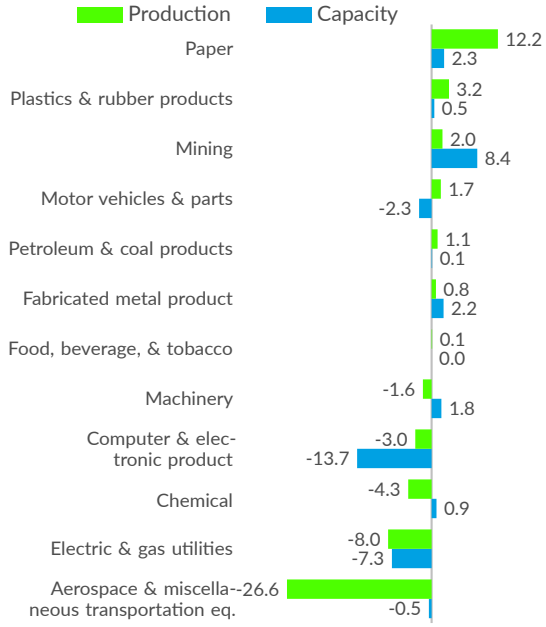
Source: Federal Reserve

As of December 2022, 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 26.6 percent, paper production increased by 12.2 percent, electric & gas utilities production decreased by 8.0 percent, and chemical production decreased by 4.3 percent.

Since February 2020, seven of the 12 industries increased **capacity**, four decreased capacity, and one was unchanged (see ■). Production capacity for computer & electronic products decreased by 13.7 percent, mining capacity increased by 8.4 percent, and electric & gas utilities capacity decreased by 7.3 percent.

Industrial Production and Capacity

As of December 2022, percent change since February 2020



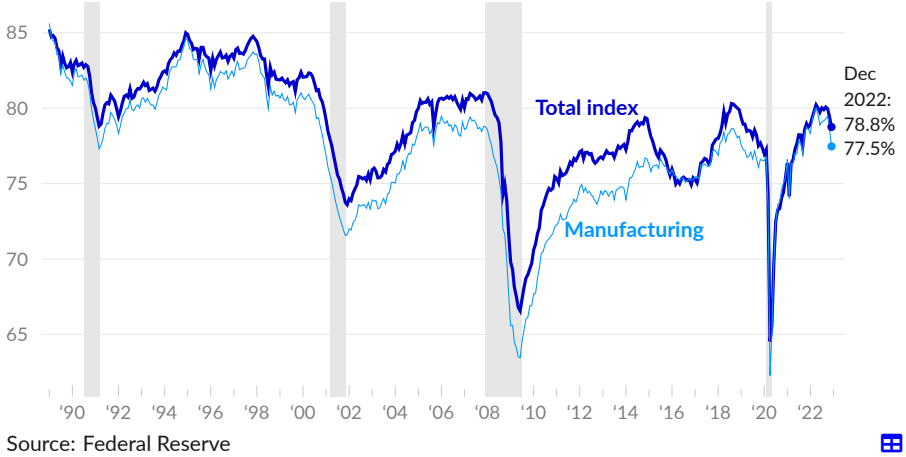
Source: Federal Reserve

The Federal Reserve also report the US industrial capacity, based on estimates of the maximum sustainable output. Industrial production as a share of total capacity is called **capacity utilization**. From 1995 to 2015, capacity utilization fell by around ten percentage points, to 75 percent, as many domestic industrial facilities reduced output or closed.

In December 2022, the US is utilizing 78.8 percent of total industrial capacity (see —), and 77.5 percent of manufacturing capacity (see —). In 2019, the total capacity utilization rate averaged 78.3 percent, and the manufacturing capacity utilization rate averaged 76.9 percent. Total capacity utilization has fallen by 6.5 percentage points since January 1989.

Capacity Utilization

industrial production as a share of total capacity, percent



Source: Federal Reserve

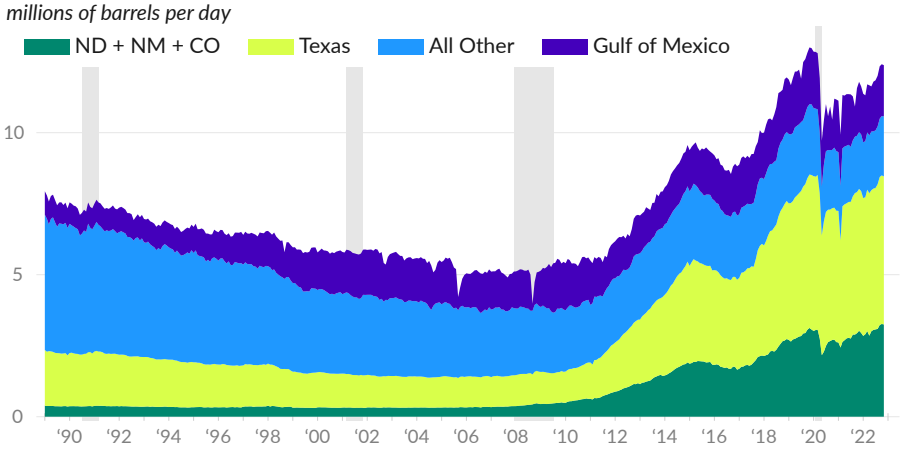
Energy Production and Use

This subsection looks at the energy sector, and covers oil production and electricity generation and sales.

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 2022, the US produced 12.4 million barrels per day, compared to 11.8 million barrels per day in November 2021.

Crude Oil Production

millions of barrels per day

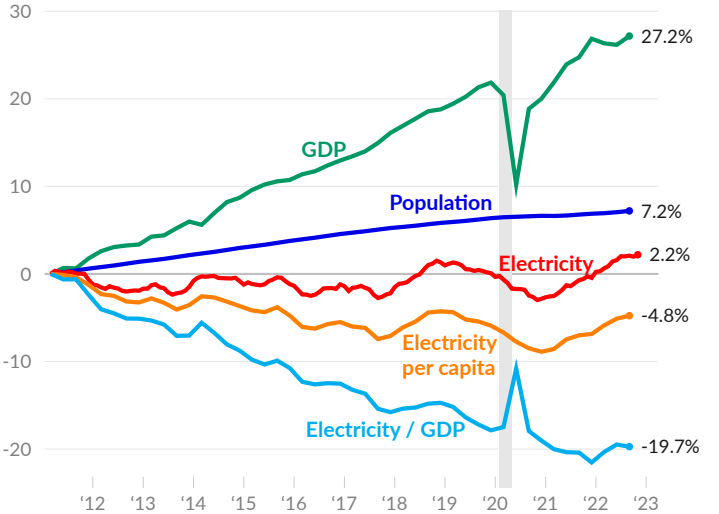


Source: Energy Information Administration

Since 2011, annualized total US **electricity generation** has increased 2.2 percent. Over the same period, the US population has increased by 7.4 percent (see —) and real GDP has increased by 28.1 percent (see —). As a result, the electricity required to produce a unit of real GDP decreased by 19.7 percent (see —).

Electricity Generation, Population, and Production

cumulative percent change since 2011

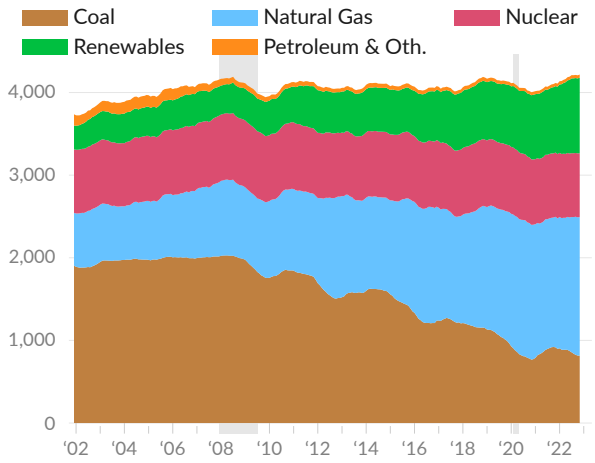


Source: EIA, BEA

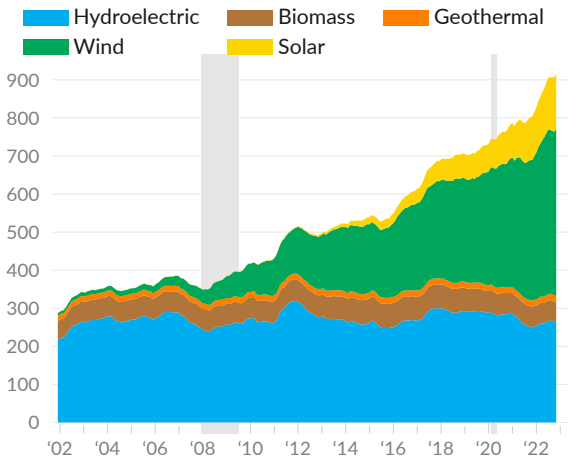
During the 12 months ending November 2022, the US generated 4,217 billion kilowatt hours of electricity. Of this, 1,677 billion kilowatt hours were generated using natural gas (see), 816 billion kilowatt hours were generated from coal (see), 773 billion from nuclear (see), and 914 billion from renewable sources (see).

Electricity Generation by Source

billion kilowatt hours, 12-month moving sum



Renewable Sources



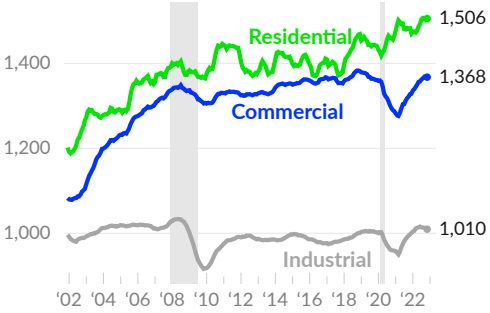
Source: Energy Information Administration

Among renewable energy sources, over the year ending November 2022, 264 billion kilowatt hours of electricity were generated with conventional hydroelectric (see), 54 billion kilowatt hours were generated from biomass (see), 17 billion were generated from geothermal (see), 435 billion from wind (see), and 144 billion from solar (see).

The Energy Information Administration report the **retail sales of electricity** to each major sector. Electricity sales to the commercial and industrial sectors fell during the pandemic, and were partially offset by increased electricity sales to the residential sector.

Electricity Retail Sales by Sector

billion kilowatt hours, 12-month moving sum



Source: Energy Information Administration

Over the year ending November 2022, retail sales of electricity to the residential sector total 1,506 billion kilowatt hours, compared to 1,440 billion during 2019 (see —). Commercial sector electricity sales total 1,368 billion kilowatt hours over the year ending November 2022, and 1,361 billion in 2019 (see —). Industrial sector sales total 1,010 billion kilowatt hours in the latest 12 months of data and 1,002 billion in 2019 (see —).

Retail Sales

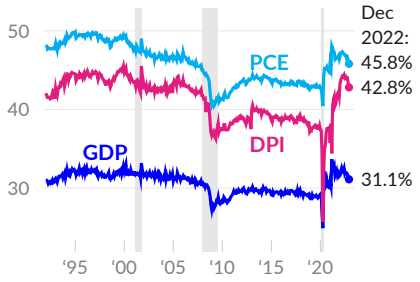
The Census Bureau report the monthly sales of retail businesses, restaurants, and bars. These retail trade figures can be a useful economic indicator. Retail trade includes brick and mortar stores as well as e-commerce and other nonstore sales to the general public.

In December 2022, **retail and food services sales** total $677.1 billion. On an annualized basis, this is equivalent to 42.8 percent of disposable (after-tax) income (see —), 45.8 percent of consumer spending (see —), and 31.1 percent of GDP (see —). During the first two months of the US COVID-19 pandemic, retail sales were a smaller portion of overall economic activity, as many businesses were closed. Since the initial reopening, retail sales have comprised a larger share of economic activity, in part as other activities, like transportation, have recovered less.

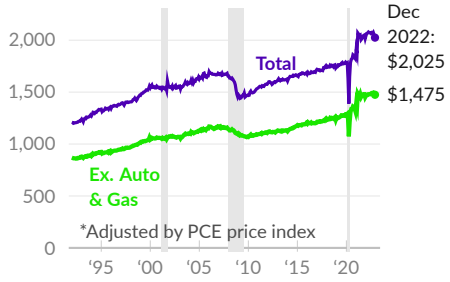
Retail and food service sales, **adjusted for population growth and inflation**, provide additional context on economic developments. Per capita retail and food services sales, adjusted by the personal consumption expenditure (PCE) price index, are $2,025 during December 2022 (see —). Prior to the pandemic, in 2019, real per capita retail and food service sales averaged $1,768 per month. Excluding automotive and gasoline sales, per capita sales were $1,475 in December 2022 and $1,266 per month in 2019, after adjusting for inflation (see —).

Retail and Food Services Sales

share of aggregate measure, percent



real, per capita, monthly, December 2022 dollars*

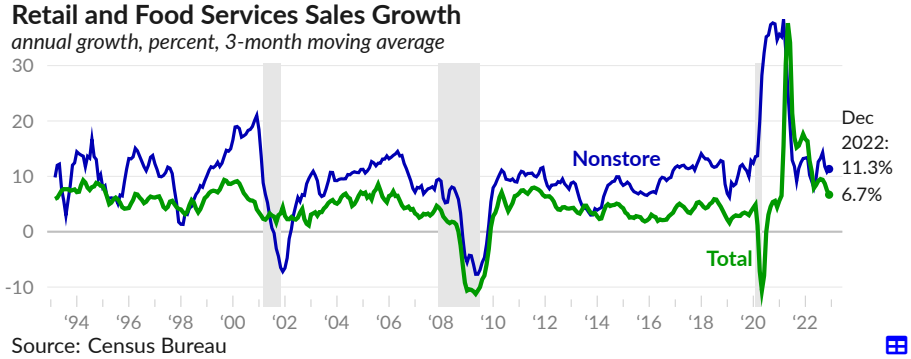


Source: Bureau of Labor Statistics

Changes in retail and food services sales can indicate shifts in consumer behavior, though these figures are also affected by changes in inflation rates. Retail and food services **sales growth** was 6.0 percent over the year ending December 2022. The three-month moving average growth rate was 6.7 percent (see —). Nonstore sales, for example from online retailers, have increased at a faster rate than other sales, since 1992. Over the past three months, one-year nonstore sales growth averaged 11.3 percent (see —).

Retail and Food Services Sales Growth

annual growth, percent, 3-month moving average



Source: Census Bureau

Since 1992, the share of after-tax income spent at different **kinds of businesses** has diverged wildly. In large part, this is due to the growth of e-commerce, with online sales replacing brick and mortar sales. However, there have also been shifts in other consumer preferences and relative prices.

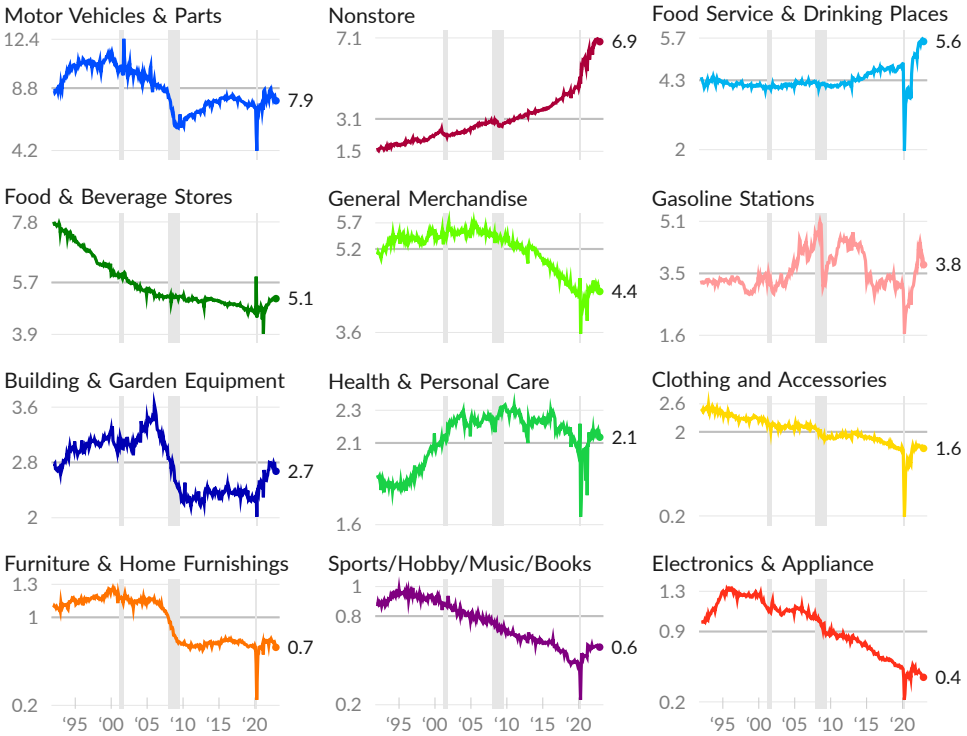
Nonstore sales were 1.7 percent of after-tax income in January 1992 and 6.9 percent in December 2022, a shift that is equivalent to $995 billion per year. Since 1992, sales as a share of after-tax income has decreased in food and beverage stores (-2.7 percentage points), clothing and accessories stores (-0.8 percentage points), and motor vehicles and parts stores (-0.7 percentage points).

Some sales categories were boosted by the housing bubble during the 2000s and its associated wealth effects, then fell sharply following the collapse of the bubble. Building and garden equipment, furniture and home furnishings stores, and motor vehicle sales all claimed a larger share of income during the 1990s and 2000s than during the 2010s. Meanwhile, food service and drinking places and health and personal care stores received a relatively stable share of income from 2000 until the COVID-19 pandemic, which hit restaurants and bars particularly hard.

Lastly, some categories are more affected by changes in relative prices. Sales at gasoline stations, for example, move with gasoline prices. Likewise, an increase in building material prices during the pandemic partially boosted the share of income spent at building and garden equipment stores.

Retail Sales by Kind of Business

share of disposable personal income, January 1992 to December 2022



Source: Census Bureau, Bureau of Economic Analysis

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.

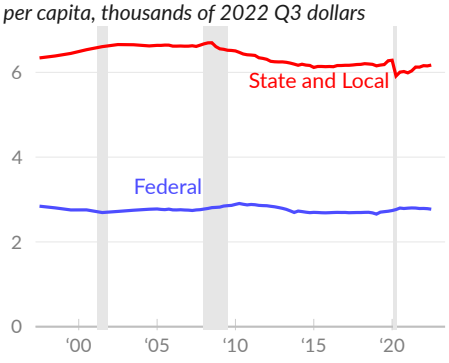
This chartbook section covers government sector statistics, including contributions to current economic activity, receipts and expenditures, assets and liabilities, and government jobs.

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 2022 Q3 dollars



Source: Bureau of Economic Analysis

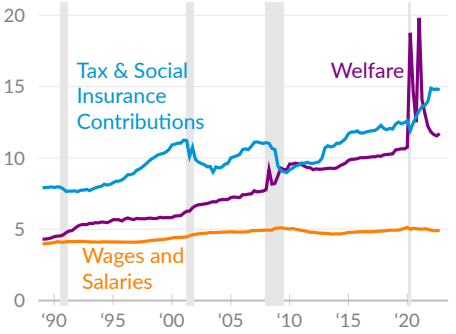
In the third quarter of 2022, the federal government value added in domestic production is $923.7 billion, equivalent to $2,772 per capita (see —). In 2019 Q4, federal government added $2,724 in value to domestic production, per capita, after adjusting for inflation.

State and local governments added $2,056.5 billion in production value in 2022 Q3 and $1,846.9 billion in 2019 Q4, equivalent after inflation to $6,171 and $6,273 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 2022 Q4 dollars



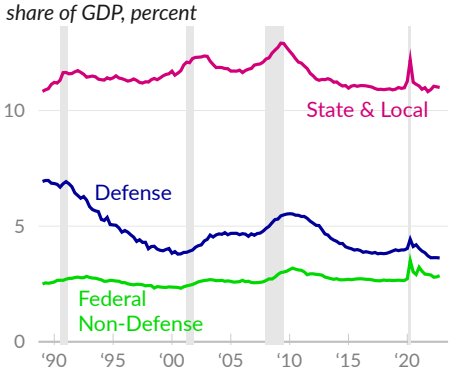
Source: Bureau of Economic Analysis

In 2022 Q4, government worker wages and salaries, not including benefits, were equivalent to $4,908 per capita, following a price-adjusted $5,049 in 2019 Q4 (see —). Welfare payments were equivalent to $11,707 per capita in 2022 Q4, compared to $10,629 per capita in 2019 Q4 (see —). In 1989 Q1, welfare payments were equivalent to $4,310 per person.

Personal current taxes and social insurance contributions total $14,788 per capita in 2022 Q4, $12,470 in 2019 Q4, and $7,895 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 2022 Q4, federal non-defense spending and investment was $746.4 billion, equivalent to 2.9 percent of GDP (see —), compared to 2.7 percent of GDP in 2019 Q4. Federal spending on national defense was equivalent to 3.6 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 2022 Q4, state and local government spending and investment was equivalent to 11.0 percent of GDP, compared to 11.0 percent in 2019 Q4 (see —).

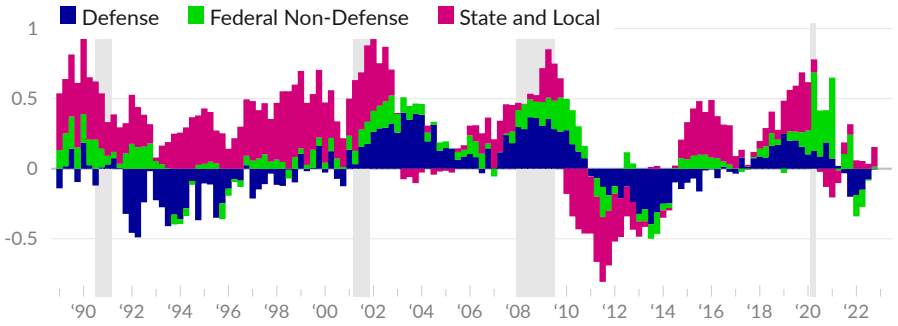
Government Consumption and Investment

Government consumption and investment directly affect economic growth in the short-term. In the fourth quarter of 2022, government consumption spending and investment contributed 0.64 percentage point to the real GDP growth rate of 2.9 percent. Over the latest four quarters, government consumption and investment contributed 0.15 percentage point to economic growth, on average. Since 1989, the average contribution has been 0.24 percentage points.

Over the four quarters ending 2022 Q4, by level of government, national defense did not contribute (see ■), other federal government contributed 0.01 percentage point (see ■), and state and local government contributed 0.14 percentage point (see ■).

Government Consumption and Investment

percentage point contribution to real GDP growth, one-year moving average



Source: Bureau of Economic Analysis

Government Consumption and Investment

percentage point contribution to real GDP growth — *moving averages*

	2022 Q4	'22 Q3	'22 Q2	'22 Q1	'21 Q4	3-year	10-year	30-year
Total	0.64	0.65	-0.29	-0.40	-0.16	0.20	0.17	0.22
Federal total	0.39	0.24	-0.22	-0.36	0.01	0.16	0.04	0.08
■ National defense	0.09	0.17	0.05	-0.33	-0.20	0.00	-0.03	0.02
Consumption expenditures	0.04	0.18	0.09	-0.21	-0.19	-0.02	-0.03	0.01
Gross investment	0.04	-0.01	-0.04	-0.11	-0.01	0.02	0.00	0.01
■ Nondefense	0.30	0.07	-0.28	-0.03	0.21	0.15	0.07	0.06
Consumption expenditures	0.22	0.04	-0.28	-0.06	0.21	0.12	0.05	0.04
Gross investment	0.08	0.03	0.01	0.03	0.00	0.03	0.02	0.02
■ State & local total	0.25	0.41	-0.06	-0.04	-0.17	0.05	0.13	0.14
Consumption expenditures	0.20	0.17	0.10	0.08	-0.10	0.08	0.12	0.12
Gross investment	0.06	0.23	-0.16	-0.13	-0.07	-0.03	0.01	0.03

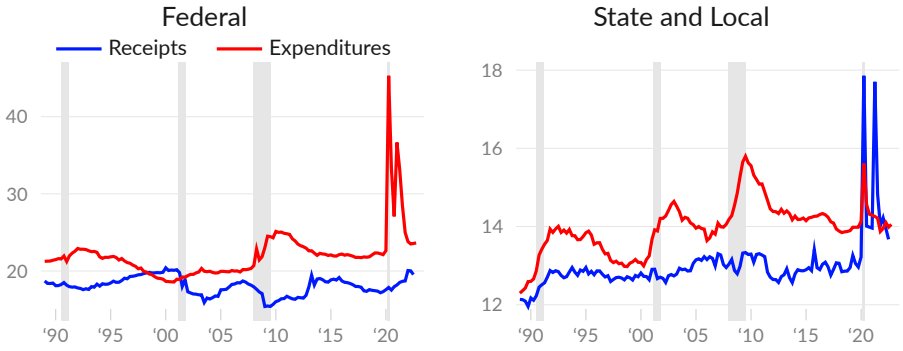
Source: Bureau of Economic Analysis

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 current household income and corporate profits.

Federal government expenditures total $6.2 trillion, or 23.6 percent of GDP, in 2022 Q4. BEA has not yet released receipts data for 2022 Q4, however, in 2022 Q3, federal government receipts total $5.0 trillion, or 19.5 percent of GDP. In 2022 Q3, the federal government deficit was $1,038 billion or 4.0 percent of GDP.

Combined state and local government expenditures total $3.7 trillion, or 14.1 percent of GDP, in 2022 Q4. BEA has not yet released receipts data for 2022 Q4, however, in 2022 Q3, combined state and local government receipts total $3.5 trillion, or 13.7 percent of GDP. In 2022 Q3, the combined state and local government deficit was $80 billion or 0.3 percent of GDP.

Receipts and Expenditures as Share of GDP

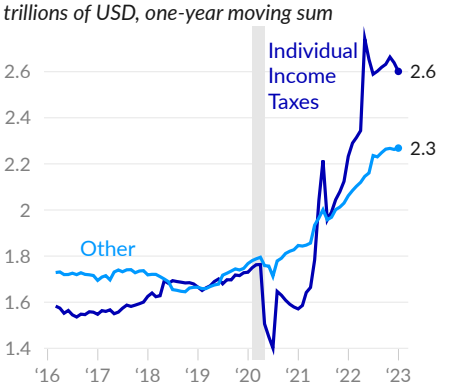


Source: Bureau of Economic Analysis

The United States Treasury report federal government receipts and outlays in the Monthly Treasury Statement. Over the 12 months ending December 2022, **Federal government receipts** total $4.9 trillion, of which $2.6 trillion are from individual income taxes (see —). The remaining receipts (see —) are largely social insurance contributions ($1.5 trillion) and corporate income taxes ($0.4 trillion).

Federal Government Receipts

trillions of USD, one-year moving sum



Source: Treasury

Composition of Federal Government Spending

Over the long-term, there have been important shifts in the **composition of federal spending**. The ways federal spending varies from these long-term trends, in the short-term, are also important.

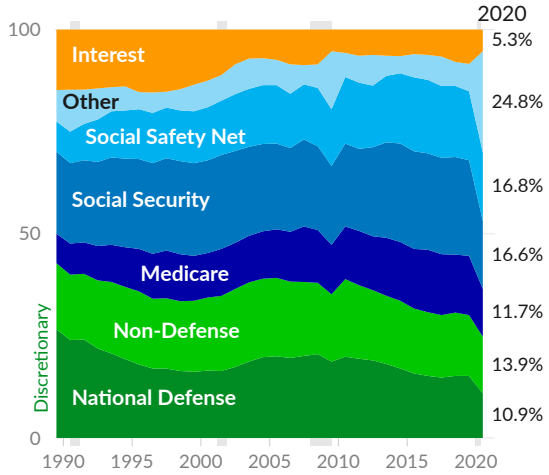
Over the long-term, Office of Management and Budget (OMB) data show national defense spending fell to 15.2 percent of outlays in 2019 from 26.6 percent in 1989 (see ■). Discretionary non-defense spending maintained a relative stable share of spending over the period (see ■). Net interest expense, the cost of federal borrowing, fell along with long-term interest rates, to 8.4 percent of outlays in 2019 from 14.8 percent in 1989 (see ■).

Offsetting the reduction in spending on interest and national defense, Medicare and Social Security now make up a larger share of federal spending, as a larger share of people are retirement age. Likewise, spending on the social safety net (means-tested benefits and Medicaid) increased as employment-to-population ratios fell and Medicaid was expanded. Medicare (see ■), Social Security (see ■), and the social safety net (see ■) combine to comprise 54.8 percent of federal spending in 2019, compared to 34.7 percent in 1989.

Composition of Federal Government Outlays

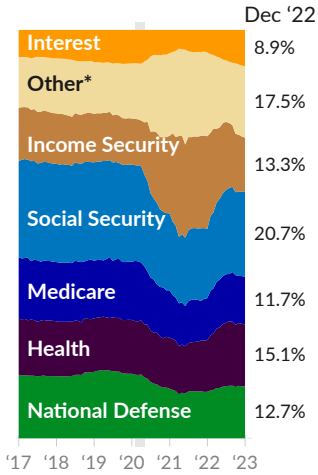
share of total, percent

Since 1990, by Budget Enforcement Act Type



Source: Office of Management and Budget

Recent Monthly, by Type*



Source: Treasury

* The two charts use different data sources with different categories and therefore do not match.

The Treasury Bureau of Fiscal Service report federal outlays by type on a monthly basis (see right chart above). The categories used in the Treasury monthly report are not the same as those used in the OMB data, so the two charts above should not be compared. The higher-frequency Treasury data, however, are helpful for showing short-term changes, and **recent changes in the composition of federal spending**.

Income security, which includes economic impact payments, the child tax credit, unemployment compensation, food and nutrition assistance, federal employee retirement and disability, and housing assistance, was 13.3 percent of federal spending over the 12 months ending December 2022 (see ■). At its peak, over the 12 months ending March 2021, income security comprised 24.7 percent of federal spending. Pre-pandemic, in 2019, the category comprised 11.3 percent.

The category labeled “other” in the above-right chart includes several subcategories worth examining. The category increased to 20.6 percent of federal spending during the 12 months ending December 2022, from 24.2 percent during the 12 months ending March 2021 (see). Prior to the pandemic, in 2019, the category was 12.8 percent of spending.

Within the “other” category, the biggest changes during the pandemic came from business and housing subsidies (commerce and housing credit) and transfers to state and local governments (general government). The category is described in the following table.

Composition of Federal Government Outlays

share of total, percent

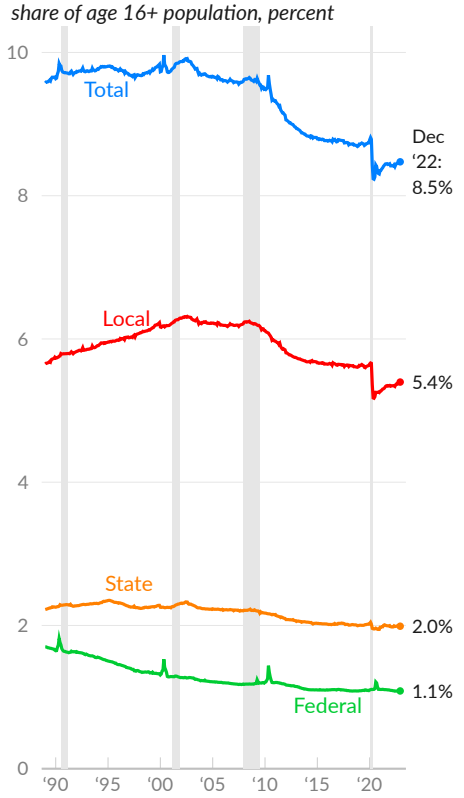
	Dec 2022	Nov 2022	Oct 2022	Mar 2021	2019	2017
Income Security	12.9	13.1	13.5	26.0	11.8	12.8
Health	14.5	14.6	14.7	10.9	12.8	13.4
Medicare	11.7	11.7	11.6	10.4	14.7	15.0
Social Security	19.8	19.7	19.7	14.7	23.6	23.8
National Defense	12.3	12.3	12.4	9.7	16.0	15.2
Net Interest	8.2	8.1	7.8	4.1	8.3	6.6
Other:	20.6	20.5	20.3	24.2	12.8	13.1
Administration of Justice	1.2	1.2	1.2	1.0	1.5	1.5
Agriculture	0.6	0.6	0.6	0.7	0.8	0.5
Commerce & Housing Credit	-0.3	-0.3	-0.3	9.8	-0.5	-0.8
Community & Regional Development	1.1	1.1	1.1	1.3	0.7	0.7
Educ., Training, Employment, & Social Serv.	11.0	11.0	10.9	3.2	2.7	3.2
Energy	-0.2	-0.2	-0.2	0.1	0.1	0.1
General Government	2.1	2.1	2.0	2.4	0.4	0.5
General Science, Space, & Technology	0.6	0.6	0.6	0.5	0.7	0.8
International Affairs	1.2	1.2	1.2	0.9	1.2	1.2
Natural Resources & Environment	0.6	0.6	0.6	0.5	0.8	0.9
Transportation	2.1	2.1	2.1	2.2	2.2	2.4
Undistributed Offsetting Receipts	-3.7	-3.8	-3.8	-1.5	-2.3	-2.3
Veterans Benefits & Services	4.3	4.3	4.2	3.0	4.5	4.4

Source: Treasury Bureau of Fiscal Service

Government Jobs

Government workers provide public services to the population. As examples, federal government jobs include the Postal Service, state government jobs include teachers and social workers, and local governments employ firefighters and utilities workers. Additionally, government employment is traditionally a relatively-stable 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 2022, there were 22.4 million government jobs, equivalent to 8.5 for every 100 people in the age 16 and older population (see —). The previous year, in December 2021, there were 22.1 million government jobs, equivalent to 8.4 percent of the age 16 and older population. During the 1990s, there were 9.7 government jobs per person age 16 or older. If the rate was the same today, there would be 3.4 million additional government workers.

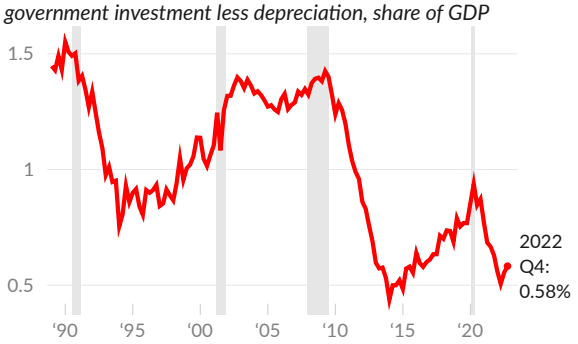
By level of government, there were 14.3 million local government workers in December 2022, equivalent to 5.4 percent of those age 16 or older (see —). In the same period, there were 5.3 million state government workers (2.0 percent of 16+ year olds, see —), and 2.9 million federal government workers (1.1 percent, see —).

Since 2019, the US has lost 290,000 total government jobs. Of these, 351,000, or 121.0 percent of the shortfall, are local government jobs. During the same period, state governments added 22,000 jobs, while the federal government added 39,000 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 2022 Q4, government net investment is $152.2 billion. Government net investment is equivalent to 0.58 percent of GDP in 2022 Q4 (see —), compared to 0.63 percent in 2021 Q4, and 0.87 percent in 2020 Q4.

Government Net Investment
government investment less depreciation, share of GDP



Source: Bureau of Economic Analysis

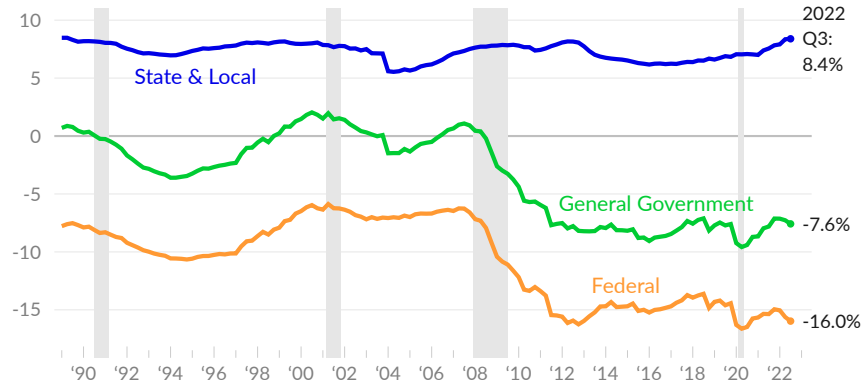
Government Balance Sheets

Public Wealth

Government balance sheets can be summarized and put into broader context by examining the **government share of US net worth**. Net worth, or assets minus liabilities, summarizes the overall financial position. Excluding public land, the federal government's debt exceeds the market value of its assets and its financial position in negative. State and local government instead have a sizable portion of US wealth.

The combined US government sector has a net worth of -$21.0 trillion, as of 2022 Q3, equivalent to -7.6 percent of national wealth (see —). Federal government net worth (excluding land) is equal to -16.0 percent of national wealth (see —), while state and local government net worth is equivalent to 8.4 percent (see —).

Government Share of US Wealth
government share of US net worth, percent

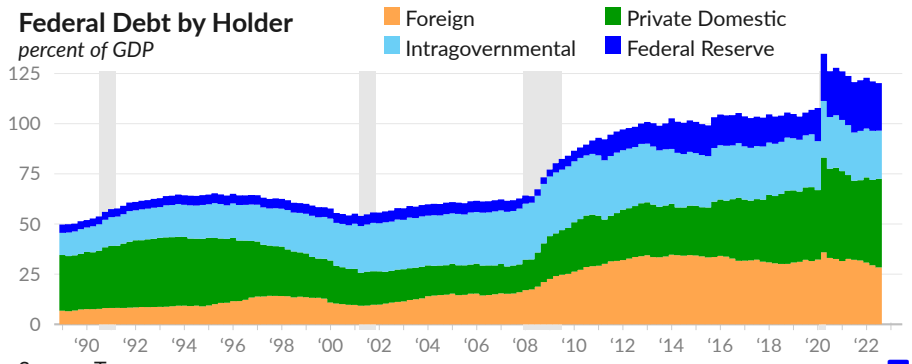


Source: Federal Reserve

Liabilities

Treasury bonds are held by a mixture of investors, including private domestic investors, overseas investors, the Federal Reserve, and government agencies and trusts (referred to as intragovernmental holdings).

In the third quarter of 2022, total public debt was $30.9 trillion, equivalent to 120.2 percent of GDP. Of this, $11.4 trillion, or 36.8 percent of the total, is held by private domestic investors (see ■). An additional $7.3 trillion, or 23.6 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.

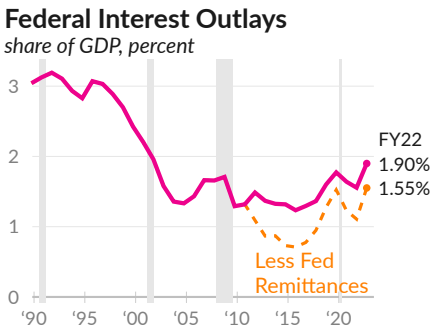


Source: Treasury

Interest Expense

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. The Federal Reserve has also absorbed some of the newly issued treasuries.

The Office of Management and Budget report **federal interest outlays** of $475 billion in fiscal year 2022, compared to $352 billion in fiscal year 2021. Put into the context of the size of the economy, federal interest outlays in fiscal year 2022 were equivalent to 1.90 percent of GDP (see —), following 1.55 percent of GDP in FY2021 and 1.64 percent in FY2020, and compared to an average of 2.9 percent in the 1990s, when interest rates were substantially higher.



Source: OMB, Fed, Author

The actual interest expense is slightly lower than the reported figure, because interest paid to the Federal Reserve gets returned to the Treasury. In FY2022, the Fed returned more than $90 billion to the Treasury. Adjusting for these remittances, the interest expense was 1.55 percent of GDP in FY2022 (see —).

Debt Sustainability

Changes in the ratio of federal government debt to GDP can be decomposed to understand how various economic forces affect the trajectory of the debt relative to our ability to service it. Specifically, **debt sustainability** is affected not only by borrowing but also by changes in real interest rates and economic growth.

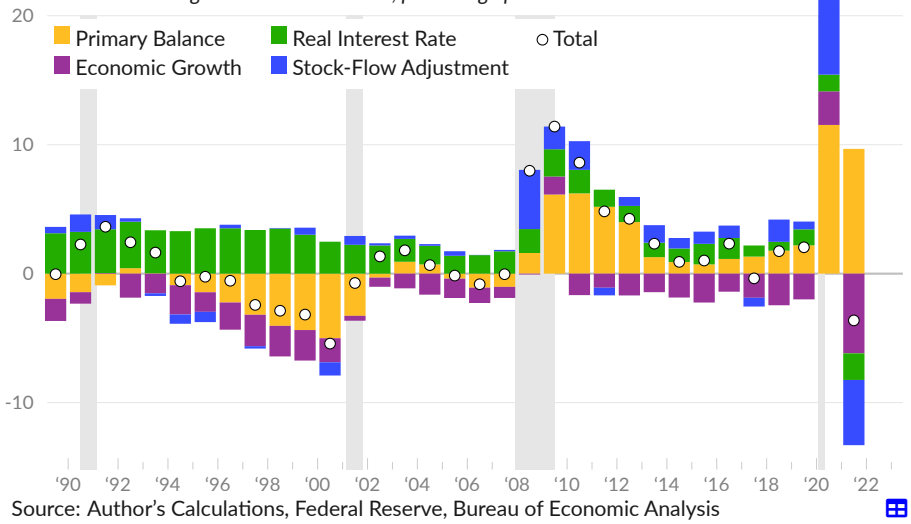
In a mechanical way, government debt is the result of the accumulation of past deficits. When the government spends more than it takes in through taxes, it borrows the difference, which adds to the debt. Importantly, some government spending is interest payments on the debt. The *primary balance* measures the gap between spending excluding interest payments and revenue. Interest payments are a product of the interest rate and the existing debt. Higher real interest rates mean larger interest payments which increase deficits and, in turn, increase debt.

Federal debt is often divided by GDP as a way to capture the ability to repay the debt. The basic idea is that **a growing economy gradually erodes the burden of its debt**. As the economy grows, it is better able to produce the resources needed to repay its debt. Finally, there are often discrepancies between when borrowing occurs and when spending occurs, and the account balances at the Treasury vary over time. For example, the Treasury Secretary made more cash available to cover any potential short-term needs during the peak of the COVID-19 pandemic. Stock-flow adjustments correct for the difference between the change in liabilities (the stock) and the current federal deficit or surplus (the flow).

In 2021, the debt to GDP ratio decreased by 3.6 percentage points (see ○). The primary balance added 9.7 percentage points to the debt to GDP ratio (see ■), economic growth subtracted 6.2 percentage points (see ■), and real interest rates subtracted 2.1 percentage points (see ■). These combined factors were greater than the actual change in liabilities; the adjustment to reconcile stocks and flows subtracted 5.1 percentage points (see ■).

Federal Government Debt Dynamics

contribution to change in debt to GDP ratio, percentage points



Source: Author's Calculations, Federal Reserve, Bureau of Economic Analysis

Assets

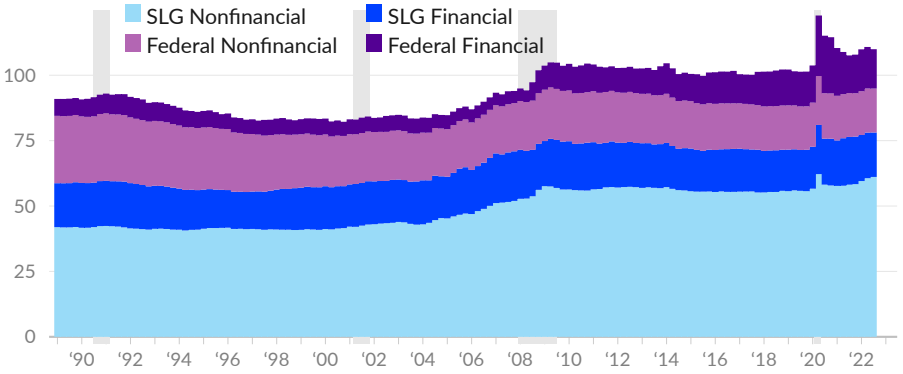
US government assets include financial assets but are mostly comprised of the non-financial assets of state and local governments (SLG), such as buildings and equipment. Land is not included in US measures of government assets.

In the third quarter of 2022, the market value of government assets, excluding land, is $28.3 trillion, equivalent to 109.9 percent of GDP. Of this, state and local government nonfinancial assets, such as buildings and equipment, are equivalent to 61.1 percent of GDP (see), and state and local government financial assets, such as insurance trust funds, are equivalent to 17.0 percent of GDP (see).

The market value of federal government nonfinancial assets is equivalent to 16.8 percent of GDP in 2022 Q3 (see). Federal government financial assets are valued at 15.0 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 exchanges rates.

Balance of Payments

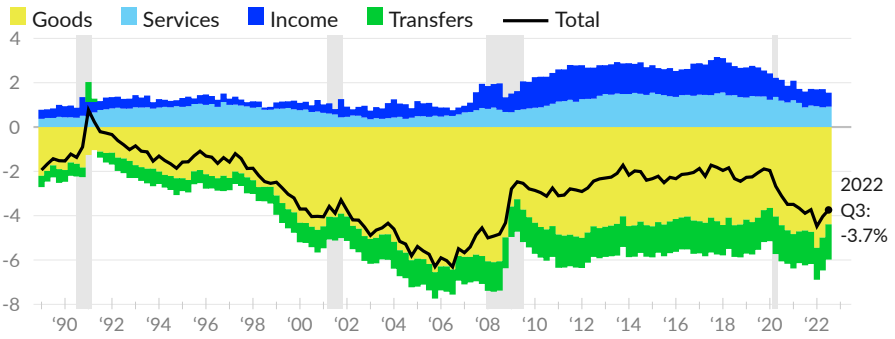
The **current account balance** captures international payments for goods and services as well as international transfers of money and net income received from ownership of foreign assets. It is the result of a set of payments to US residents, called current receipts, which are largely for exports of 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 2022 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 4.4 percent of GDP. The initial GDP report for 2022 Q4 does not include the data needed to calculate the current account balance, however, the goods trade deficit for 2022 Q4 is equivalent to 4.3 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

	2022 Q4	'22 Q3	'22 Q2	'22 Q1	'21 Q4	'21 Q3	*moving averages* 3-year	10-year
Current Account Balance	–	-3.74	-4.04	-4.48	-3.73	-3.89	–	–
Current Receipts	–	17.63	17.63	16.71	16.56	16.29	–	–
Exports	11.51	11.91	12.04	11.36	11.22	10.84	10.98	12.12
Goods	7.82	8.32	8.45	7.84	7.71	7.44	7.44	8.08
Durable	4.15	4.22	4.21	4.15	4.10	4.09	4.11	4.85
Non-Durable	3.67	4.11	4.25	3.69	3.61	3.35	3.33	3.24
Services	3.69	3.59	3.58	3.52	3.51	3.40	3.54	4.03
Income Receipts	–	5.02	4.88	4.64	4.60	4.70	–	–
Transfer Receipts	0.80	0.69	0.71	0.71	0.73	0.75	0.76	0.78
Current payments	–	21.36	21.67	21.19	20.29	20.18	–	–
Imports	14.75	15.38	16.14	15.88	14.98	14.62	14.39	15.14
Goods	12.08	12.71	13.45	13.30	12.44	12.10	11.94	12.44
Durable	7.55	8.01	8.38	8.45	7.90	7.74	7.67	7.92
Non-Durable	4.53	4.70	5.06	4.84	4.54	4.36	4.27	4.53
Services	2.67	2.67	2.69	2.58	2.54	2.51	2.45	2.70
Income Payments	–	4.40	4.05	3.87	3.86	3.99	–	–
Transfer Payments	1.46	1.59	1.48	1.44	1.45	1.57	1.52	1.46

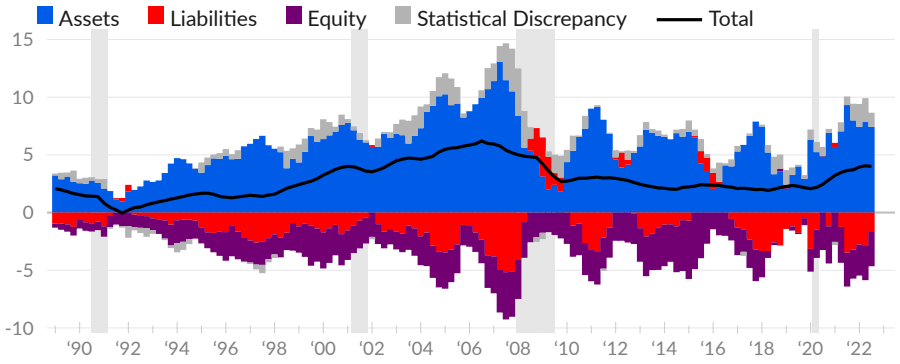
Source: Bureau of Economic Analysis

The financial account measures transactions between the US and the rest of the world that result in changes in the ownership of assets. The **financial account balance** captures the difference between capital inflows and capital outflows, and offsets the current account balance. Each quarter, the US acquires foreign goods and services, and the rest of the world acquires US assets, on a net basis.

In the third quarter of 2022, the rest of the world acquired $2.68 trillion in US assets, equivalent to 7.4 percent of GDP (see ■). The rest of the world incurred the equivalent of -1.7 percent of US GDP in liabilities (see ■) and issued -3.0 percent of US GDP of equity in foreign businesses (see ■).

Financial Account Balance

percent of GDP, one-year moving average



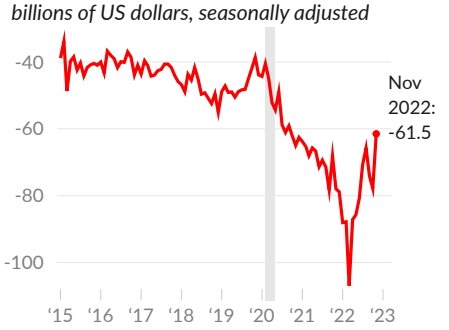
Source: Federal Reserve

Trade

Each month, the Census Bureau report **goods and services trade** between the US and the rest of the world. US purchases of foreign goods and services are classified as imports and foreign purchases of US goods and services are exports. The trade of goods includes consumer goods, industrial equipment, and agricultural products. Services trade includes travel and tourism, business services, and charges for the use of intellectual property, among other services.

US Imports and Exports, Monthly
billions of US dollars, seasonally adjusted

Trade Balance, Monthly
billions of US dollars, seasonally adjusted



Source: Census Bureau

US goods and services imports total $313.4 billion in November 2022, following $334.8 billion in October (see —). Imports average $327.0 billion over the latest three months of data, and $296.7 billion during the same months, one year prior. In 2019, monthly US imports average $258.8 billion. For additional context, imports are equivalent to $937 per capita, in the latest month.

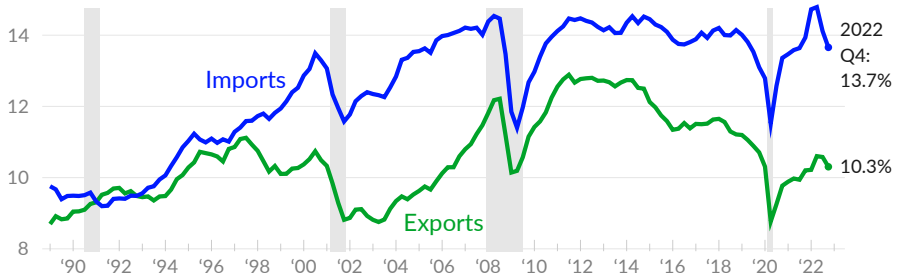
The US exported $251.9 billion of goods and services in November 2022, following $257.0 billion in October (see —). The three-month average was $255.8 billion in November, and $221.9 billion one year prior. Exports were $212.2 billion per month, on average, in 2019. In the latest month, exports are equivalent to $753 per capita or $1,589 per worker.

Spending on imports exceeds payments received for exports, resulting in a trade deficit. In November, the trade deficit was $61.5 billion, following $77.8 billion in October (see —). Over the past three months, the average trade deficit is $71.2 billion, compared to $74.8 billion one year prior. In 2019, the average monthly trade deficit is $46.6 billion.

Nonpetroleum goods and services imports (see —) were equivalent to 13.7 percent of GDP in the the fourth quarter of 2022, while exports of nonpetroleum goods and services (see —) were equivalent to 10.3 percent of GDP. In 2019 Q4, nonpetroleum imports were 13.1 percent of GDP, and exports were 10.7 percent.

Imports and Exports, Nonpetroleum

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



Source: Bureau of Economic Analysis

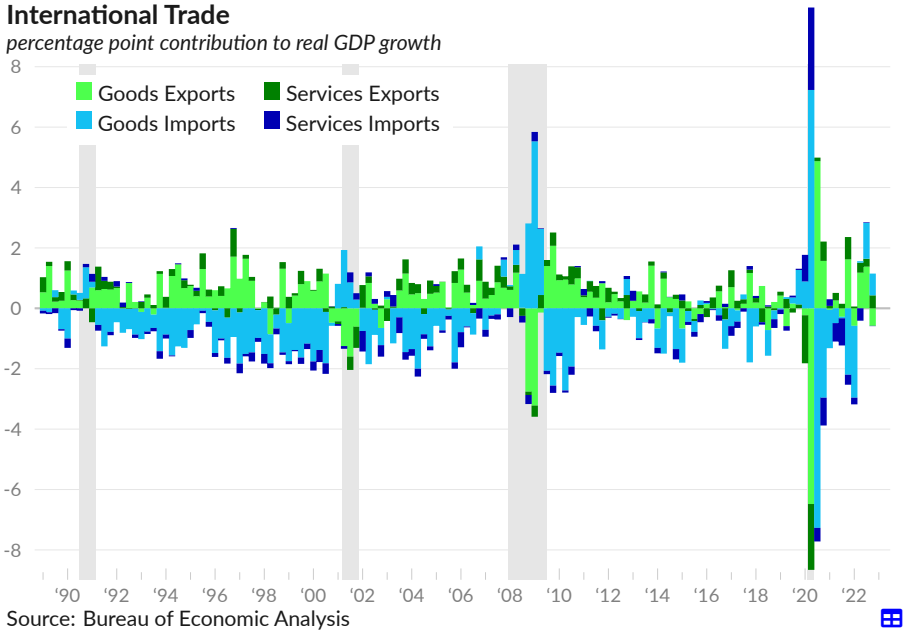
Contribution to Overall Growth

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 instead subtracted from spending data to calculate domestic production.

Goods exports subtracted 0.58 percentage point from GDP growth in the fourth quarter of 2022 while services exports contributed 0.43 percentage point. Good imports contributed 0.72 percentage point to GDP growth and services imports subtracted 0.01 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*

	2022 Q4	'22 Q3	'21 Q4	2016	2012 –13	2005 –06	1998 –99	1989 –93
Exports of goods and services	11.51	11.91	11.22	11.94	13.61	10.31	10.41	9.42
Exports of goods	7.82	8.32	7.71	7.74	9.35	7.30	7.52	6.84
Foods, feeds, and beverages	0.64	0.70	0.72	0.70	0.81	0.46	0.50	0.60
Industrial supplies & materials	2.98	3.33	2.81	2.07	2.95	1.92	1.55	1.65
Petroleum and products	1.21	1.34	1.02	0.53	0.90	0.28	0.11	0.12
Capital goods, except automotive	2.24	2.28	2.21	2.78	3.21	2.84	3.27	2.61
Automotive vehicles, & parts	0.64	0.62	0.61	0.80	0.90	0.77	0.79	0.67
Consumer goods, ex. food & auto	0.92	0.99	1.04	1.03	1.12	0.91	0.86	0.74
Durable goods	0.44	0.46	0.45	0.56	0.61	0.49	0.44	0.39
Nondurable goods	0.47	0.52	0.59	0.48	0.50	0.41	0.42	0.35
Exports of services	3.69	3.59	3.51	4.20	4.26	3.01	2.90	2.58
Transport	0.36	0.34	0.31	0.44	0.54	0.46	0.49	0.59
Travel	0.58	0.54	0.39	1.03	0.98	0.71	0.93	0.90
Intellectual property charges	0.48	0.49	0.54	0.60	0.67	0.50	0.40	0.29
Other business services	2.14	2.11	2.16	2.00	1.92	1.19	0.92	0.60
Imports of goods and services	14.75	15.38	14.98	14.65	16.73	15.99	12.65	10.38
Imports of goods	12.08	12.71	12.44	11.87	13.87	13.48	10.59	8.45
Foods, feeds, and beverages	0.79	0.81	0.80	0.70	0.69	0.54	0.46	0.43
Industrial supplies & materials	2.88	3.18	2.95	2.34	4.24	4.24	2.22	2.16
Petroleum and products	1.09	1.26	1.05	0.85	2.49	2.15	0.65	0.87
Capital goods, except automotive	3.35	3.43	3.27	3.18	3.36	3.00	3.03	2.04
Automotive vehicles, & parts	1.58	1.60	1.42	1.88	1.84	1.84	1.74	1.46
Consumer goods, ex. food & auto	2.94	3.19	3.32	3.13	3.18	3.20	2.47	1.83
Durable goods	1.38	1.65	1.75	1.64	1.71	1.75	1.29	0.97
Nondurable goods	1.56	1.55	1.57	1.49	1.47	1.46	1.18	0.86
Imports of services	2.67	2.67	2.54	2.78	2.87	2.51	2.06	1.93
Transport	0.56	0.61	0.52	0.49	0.59	0.60	0.54	0.55
Travel	0.49	0.45	0.33	0.58	0.55	0.57	0.63	0.61
Intellectual property charges	0.19	0.18	0.18	0.22	0.21	0.18	0.13	0.06
Other business services	1.30	1.31	1.39	1.32	1.32	0.91	0.57	0.38

Source: Bureau of Economic Analysis

Import Penetration

Goods can be produced domestically, 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.

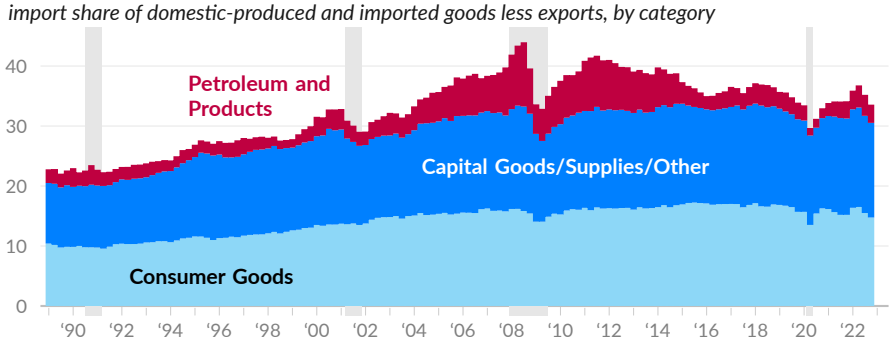
From 1989 to 2011, imports of consumer goods excluding petroleum increased by the equivalent of 5.7 percent of domestic consumption of goods; petroleum-related imports increased by the equivalent of 6.3 percent; and all other goods imports increased by the equivalent of 6.2 percent.

Since 2011, imports of consumer goods decreased by the equivalent of 1.6 percent of domestic goods demand; imports of petroleum products decreased by the equivalent of 5.3 percent; and other imports decreased by the equivalent of 0.4 percent.

As of 2022 Q4, imports of consumer goods excluding petroleum and petroleum products are equivalent to 14.8 percent of domestic consumption of goods (see ■). Petroleum-related imports claim 3.0 percent (see ■) and imports of all other goods, primarily capital goods, industrial supplies, and materials, are equivalent to 15.8 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 2022, trade with the top 25 trading partners (see table) comprises 85.6 percent of total US trade in goods. The top three US trading partners are Canada, Mexico, and China. These three countries account for 41.8 percent of US goods trade in November 2022.

US Trade in Goods
census basis, millions of USD, not seasonally adjusted

	November 2022			November 2021		
	Imports	Exports	Total	Imports	Exports	Total
Total, All Countries	256,183	170,691	426,874	259,441	156,285	415,726
Canada	33,844	29,577	63,422	33,828	27,598	61,427
Mexico	36,807	25,596	62,403	34,605	24,003	58,608
China	36,876	15,576	52,452	48,360	15,865	64,225
Germany	13,361	6,122	19,484	11,788	5,316	17,104
Japan	12,257	6,378	18,635	10,742	6,597	17,340
South Korea	9,903	5,645	15,548	8,035	5,585	13,621
United Kingdom	5,764	6,813	12,577	4,918	5,278	10,197
Taiwan	7,741	3,518	11,259	6,932	3,005	9,937
India	6,247	4,132	10,379	6,526	3,463	9,989
Vietnam	9,375	852	10,227	9,371	886	10,257
Netherlands	3,452	5,807	9,259	3,262	4,763	8,026
France	4,731	3,882	8,613	4,178	2,572	6,750
Ireland	6,989	1,343	8,332	7,512	1,592	9,105
Italy	5,775	2,032	7,807	5,434	1,627	7,062
Switzerland	4,343	3,063	7,406	6,977	1,303	8,280
Brazil	3,327	3,855	7,183	2,844	3,838	6,683
Singapore	2,404	3,530	5,935	2,457	2,849	5,306
Malaysia	4,408	1,375	5,783	4,418	1,290	5,709
Thailand	4,639	1,076	5,716	4,173	1,101	5,274
Belgium	2,806	2,871	5,677	1,763	2,810	4,574
Spain	1,998	2,145	4,144	1,512	1,592	3,105
Australia	1,393	2,423	3,816	1,084	2,164	3,249
Indonesia	2,620	780	3,400	2,471	786	3,258
Colombia	1,393	1,559	2,953	1,268	1,711	2,980
Turkey	1,583	1,287	2,870	1,381	1,433	2,815

Source: Census Bureau

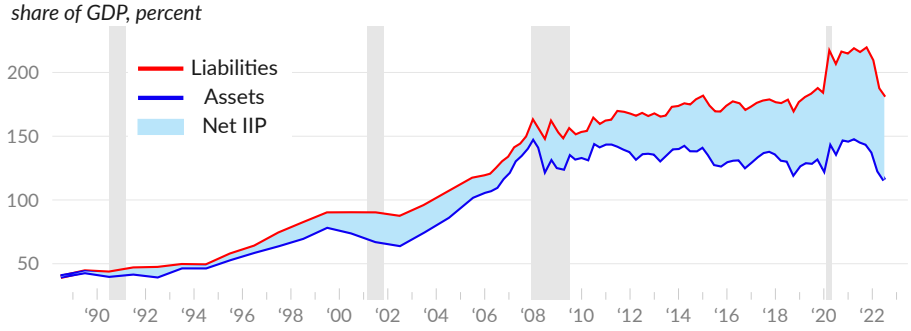
International Investment Position

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

In 2022 Q3, domestic holdings of foreign assets total $29.7 trillion, equivalent to 115.6 percent of GDP (see —). In 2022 Q2, these assets were equivalent to 122.8 percent of GDP, and in 2019, they were equivalent to 129.7 percent. Domestic liabilities to the foreign sector total $46.4 trillion, or 180.5 percent of GDP, in 2022 Q3, following 187.3 percent in 2022 Q2, and 181.4 percent in 2019 (see —).

The overall result of these financial positions, net IIP, or holdings of foreign assets minus liabilities, identifies the US as a net debtor to the rest of the world, to the equivalent of 65.0 percent of GDP in 2022 Q3, following 64.5 percent in 2022 Q2, and 51.7 percent in 2019 (see).

International Investment
share of GDP, percent



Source: Bureau of Economic Analysis

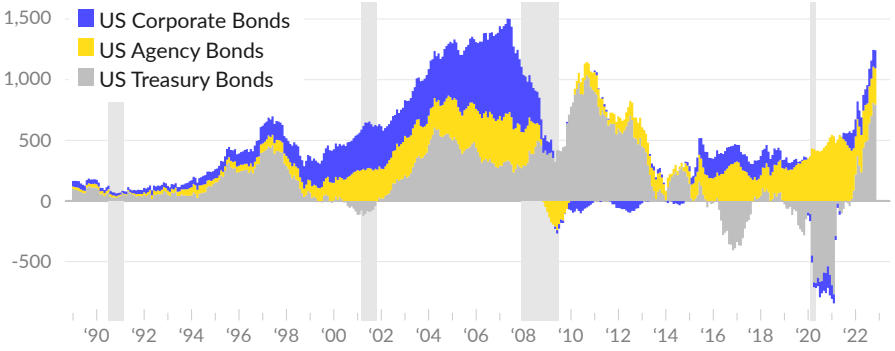
Capital Flows

The purchases and sales of US bonds by the rest of the world give insight into overall **capital flows** and appetite for different types of debt. During the 2000s, other countries were accumulating US corporate and government bonds, as the US was borrowing from the rest of the world and running a very wide trade deficit. In 2020, the rest of the world was a net purchaser of US government agency bonds but a net seller of treasuries.

Over the year ending November 2022, the rest of the world was a net buyer of $793 billion of US treasury bonds, equivalent to 3.0 percent of US GDP (see). Over the same period, the rest of the world was a net buyer of $301 billion of US agency bonds, (see), and a net buyer of $148 billion of US corporate bonds, (see).

Long-Term Bond Flows

purchases by foreigners minus sales by foreigners
trailing 12-month sum, billions of November 2022 US dollars



Source: Treasury International Capital, Setser

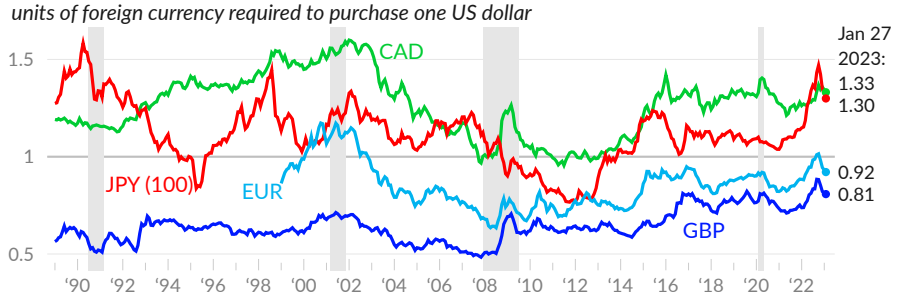
Exchange Rates

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 27, 2023, one US dollar buys approximately: 1.33 Canadian dollars (see —), 130 Japanese yen (see —), 0.92 euros (see —), and 0.81 British pounds (see —). Over the past three years, the nominal exchange rate between the US dollar and the Canadian dollar increased 5.7 percent, the USD-JPY rate increased 13.7 percent, the USD-EUR rate increased 3.9 percent, and the USD-GBP rate increased 9.2 percent.

Selected Exchange Rates

units of foreign currency required to purchase one US dollar

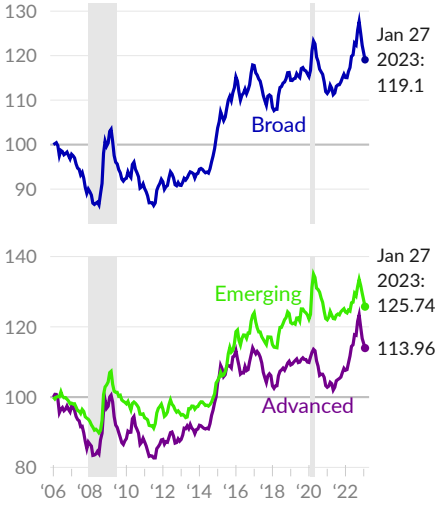


Source: Federal Reserve

The Federal Reserve **trade-weighted dollar** indices track weighted-average foreign exchange rates based on 26 currencies that are important to US trade. The weight of each currency in the index is based on the bilateral trade share of total trade in goods and services. These US dollar indices can simplify analysis of the overall role of foreign exchange rates on US trade.

Dollar Indices

trade-weighted foreign exchange rate, index, January 2006=100



Source: Federal Reserve

The **broad dollar index** (see —) summarizes foreign exchange rates between the US and trading partners by weighting foreign currencies in the index by the total amount of goods and services trade with the relevant countries.

As of January 27, 2023, the broad dollar index is 19.1 percent above its value at inception in 2006. Over the past three years, the index value has averaged 117.2, compared to an average of 113.6 over the previous three-years.

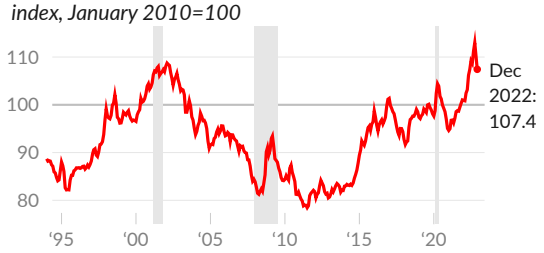
The Fed separately calculates the trade-weighted exchange rate with **advanced economies**, and with **emerging markets**. Since 2006, the dollar has increased 25.7 percent against emerging market currencies (see —), and increased 14.0 percent against advanced economy currencies (see —).

Shifts in relative consumer prices between the US and trading partners complicate analysis of exchange rates. For example, the US dollar-Japanese yen exchange rate is relatively stable from 2000 to 2020, but Japan has less inflation in consumer prices over the period. At the end of the period, 100 yen buys more consumer goods in Japan than one dollar will buy in the US.

Real effective exchange rates incorporate the inflation rate in the US and in trading partners, and are again weighted by the amount of trade with each partner. The real effective exchange rate captures the basket of goods that can be purchased by unit of currency, as opposed to capturing the basket of other currencies that can be purchased.

USD Real Effective Exchange Rate

trade-weighted foreign exchange rate, index, January 2010=100



Source: BIS

The Bank for International Settlements (BIS) calculates **real effective exchange rates** for many countries, on a monthly basis. As of December 2022, the US dollar real effective exchange rate has increased 7.4 percent since 2010. In 2019, the index average was 98.6. Over the past three months, the index average value was 110.2.

Selected Exchange Rates

units of foreign currency required to buy one US dollar

	Jan 27, 2023	1-month moving average	1-year moving average	2019 average	1-month percent change	1-year percent change	5-year percent change
EUR	0.921	0.931	0.951	0.893	-2.2	4.3	8.4
GBP	0.808	0.820	0.813	0.784	-2.6	9.6	6.0
JPY	129.9	131.0	131.8	109.0	-2.1	12.9	14.1
CAD	1.331	1.345	1.305	1.327	-2.0	5.0	5.2
MXN	18.77	19.07	20.04	19.25	-3.4	-8.2	-2.1
CNY	6.79	6.82	6.74	6.91	-2.8	6.5	2.4
CHF	0.922	0.925	0.954	0.994	-1.3	-0.4	-6.8
HKD	7.83	7.81	7.83	7.84	0.3	0.4	0.3
INR	81.54	81.95	78.90	70.38	-1.6	10.1	25.3
AUD	1.408	1.447	1.443	1.439	-5.5	1.0	9.5
NZD	1.542	1.568	1.579	1.518	-2.9	4.2	6.4
BRL	5.09	5.22	5.15	3.94	-0.9	-10.4	56.6
KRW	1231.5	1248.5	1290.7	1165.8	-3.8	2.7	9.1
MYR	4.24	4.34	4.40	4.14	-4.1	1.0	0.2
DKK	6.85	6.92	7.08	6.67	-2.1	4.3	8.3
NOK	9.89	9.93	9.65	8.80	0.2	11.5	23.8
SEK	10.32	10.40	10.16	9.46	-2.0	13.3	25.8
ZAR	17.18	17.07	16.42	14.45	1.3	9.5	25.1
SGD	1.313	1.329	1.376	1.364	-2.8	-3.2	-3.6
TWD	30.22	30.48	29.89	30.90	-1.7	9.2	-0.2

Source: Federal Reserve

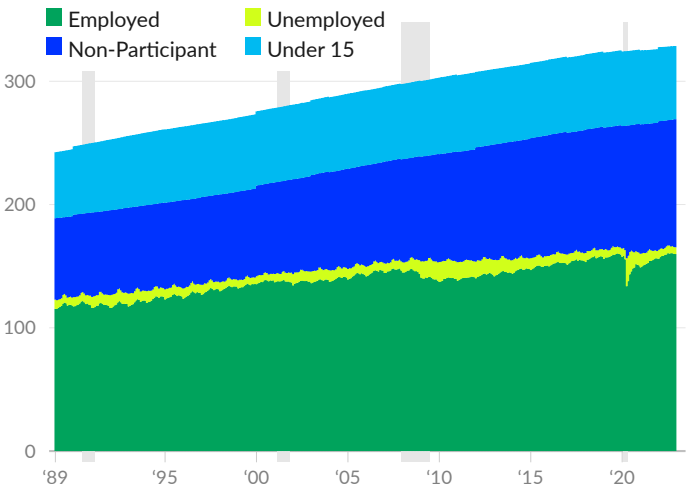
Labor Markets

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 2022, 159.8 million people are employed (including self-employment).

The number of people who are employed divided by the total population is the employment rate or employment-to-population ratio, which is 48.6 percent as of December 2022. 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



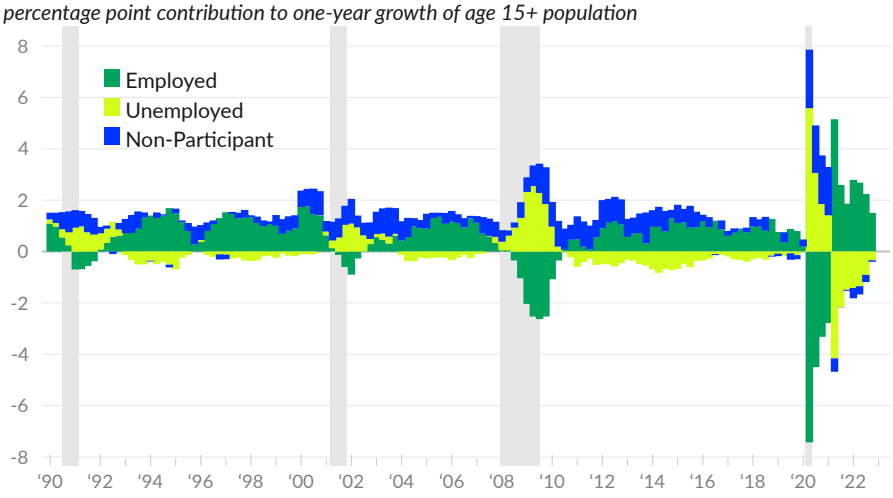
Source: Author's Calculations from CPS

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 2022, there are 5.5 million unemployed people. The combined group of employed and unemployed people is the labor force. The unemployment rate, unemployed people as a share of the labor force, is currently 3.3 percent. The labor force as a share of the population is the labor force participation rate, currently 50.3 percent.

People who are neither employed nor unemployed are considered *outside of the labor force*. Nonparticipants usually comprise about half of the population, and total 163.3 million in December 2022. The category includes children (59.3 million), students (18.7 million), unpaid caregivers (12.6 million), those unable to work due to disability or illness (13.7 million), those who want a job but have given up looking (5 million), and retirees and the elderly (51.8 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 2022, thousands of people, not seasonally adjusted

	Total, 16+	Men, 16–29	Men, 30–59	Men, 60+	Women, 16–29	Women, 30–59	Women, 60+
Population	264,844	29,707	62,694	36,649	29,612	63,937	42,246
Employed	158,872	18,509	53,288	12,507	17,358	46,781	10,429
Multiple jobs	8,149	690	2,860	535	976	2,590	499
Full-time	119,070	12,970	45,498	8,893	10,344	35,235	6,130
Part-time	39,802	5,539	7,790	3,615	7,014	11,546	4,299
Economic reasons	3,992	760	1,287	248	485	1,040	174
Unemployed	5,352	1,197	1,368	382	987	1,166	252
Not in Labor Force	100,621	10,001	8,038	23,760	11,267	15,990	31,564
Discouraged	4,938	897	880	573	837	1,113	639
Disabled/Ill	13,805	860	3,597	2,301	635	3,896	2,516
Family/Care	12,659	456	1,072	71	2,278	7,963	819
School	15,103	7,169	376	24	6,967	514	52
Retirement	52,014	100	1,530	20,673	189	2,077	27,444

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 three-year change in labor force status, in number of people.

Labor Force Changes

Change from December 2019 to December 2022, thousands of people

	Total, 16+	Men, 16–29	Men, 30–59	Men, 60+	Women, 16–29	Women, 30–59	Women, 60+
Population	4,663	-702	1,322	2,578	-571	251	1,785
Employed	368	-596	938	495	-830	374	-12
Multiple jobs	90	-102	260	-48	-7	-68	55
Full-time	-774	-448	-27	427	-839	150	-38
Part-time	1,143	-148	964	68	9	224	26
Economic reasons	-257	-34	187	-49	-268	-93	0
Unemployed	-151	-139	-65	118	48	-122	9
Not in Labor Force	4,446	33	450	1,965	212	0	1,788
Discouraged	308	-45	36	38	2	181	96
Disabled/Ill	-979	-148	-198	-157	-18	-318	-141
Family/Care	440	91	361	-22	105	14	-109
School	-301	-62	-125	-2	-72	-56	16
Retirement	4,385	-8	147	2,114	52	136	1,944

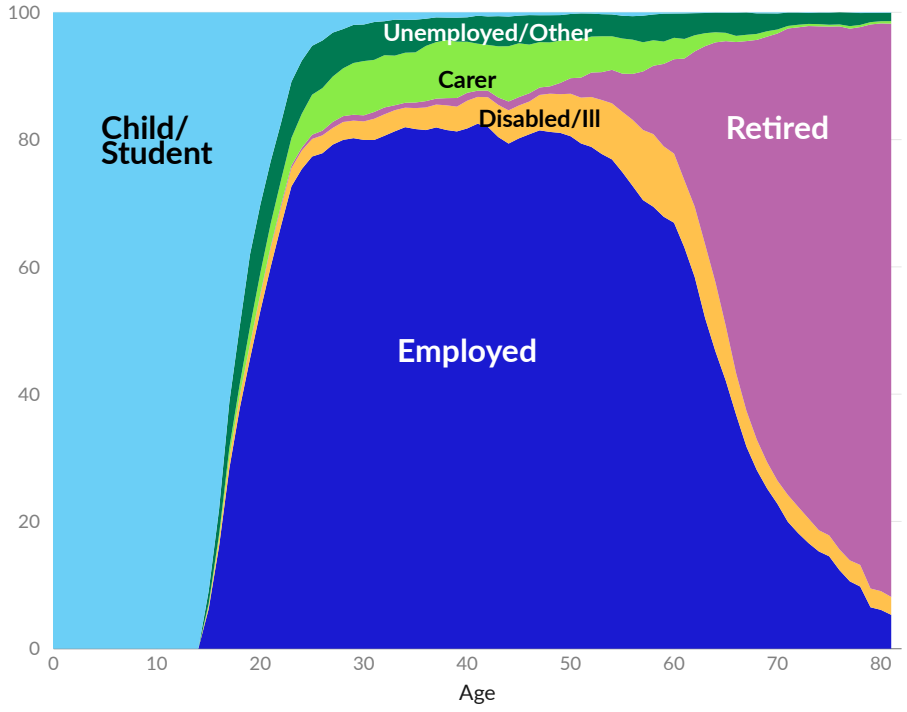
Source: Author's Calculations from CPS

Labor Force Status and Age

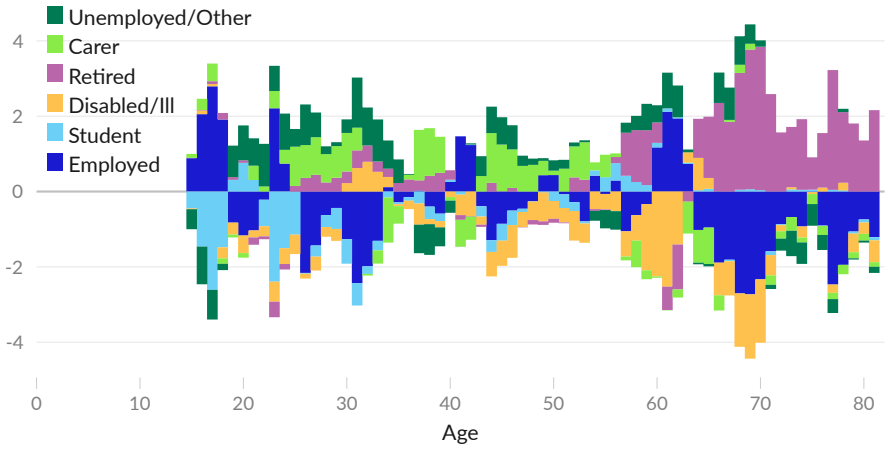
There is a clear relationship between age and employment. Children are not permitted to work and many young people attend school full time. During ages 25 to 54, around 80 percent of the population is employed. The remaining 20 percent include caregivers and those unable to work due to disability or 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 2022



change since December 2019 in share of age group, percentage points



Source: Author's Calculations from CPS, Bruenig

Gross Labor Force Status Changes

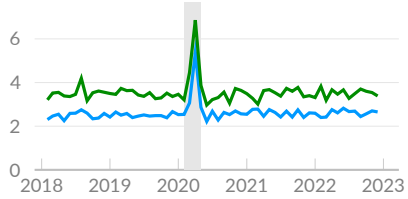
The changes in labor force status described above are net changes, rather than gross changes. That is, the one-year change in unemployment is the result of some people staying unemployed, some becoming unemployed, and some no longer being unemployed, as well as other flows like deaths and people becoming 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 Labor Force Flows

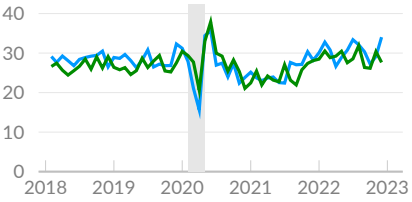
share of initial labor force status, percent

Employed to Unemployed

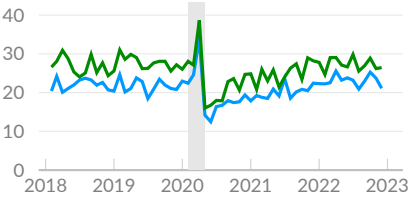
Employed to Out of Labor Force



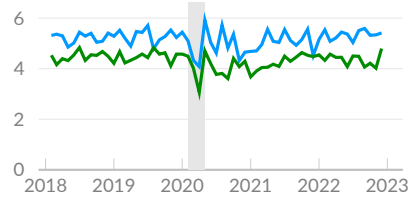
Unemployed to Employed



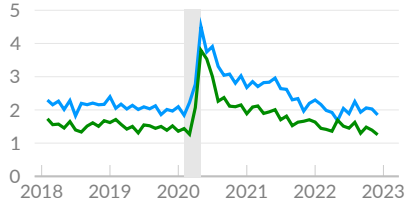
Unemployed to Out of Labor Force



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.

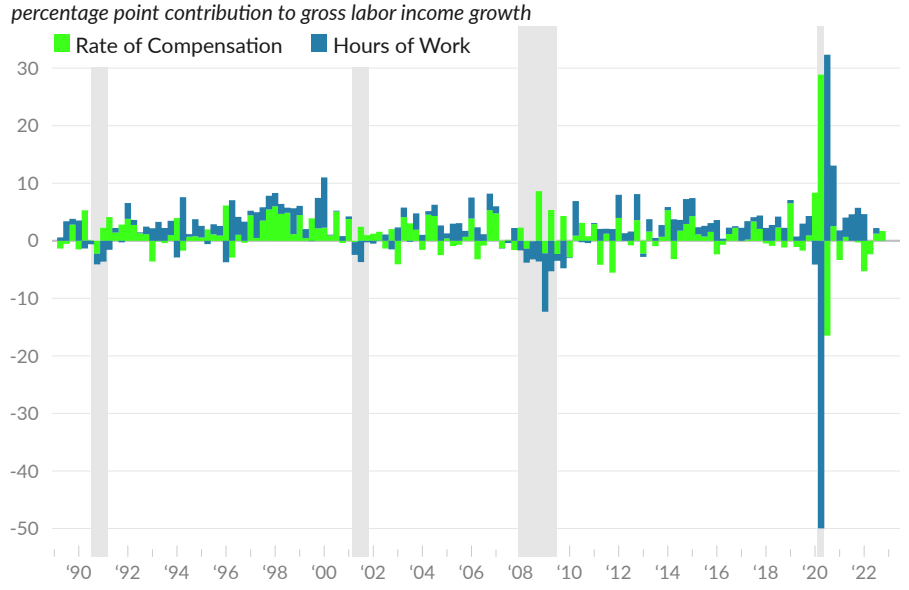
As of the third quarter of 2022, labor receives 63.5 percent of net domestic income. Labor's share decreased 0.6 percentage point over the past year. The labor share is 2.2 percentage points above its 30-year low of 61.3 percent in 2014 Q3, and 4.2 percentage points below the 30-year high of 67.7 percent 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 1.69 percent in 2022 Q4. Changes in wages contributed 1.71 percentage points, and changes in total hours worked subtracted 0.02 percentage point.

Gross Labor Income Growth
percentage point contribution to gross labor income growth



Source: Author's Calculations

Employment

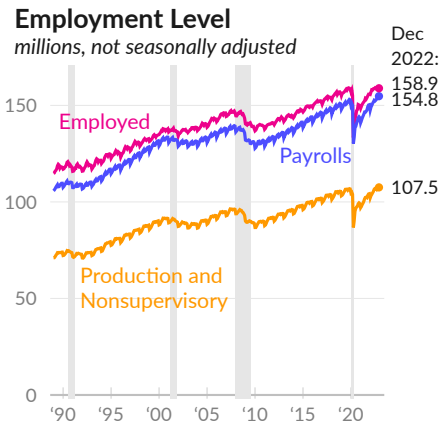
Employment is critical to production and as a source of income. This subsection covers payrolls and employment rates for different groups and places. Related topics, such as work arrangements, hours worked, and wages, are covered in later subsections.

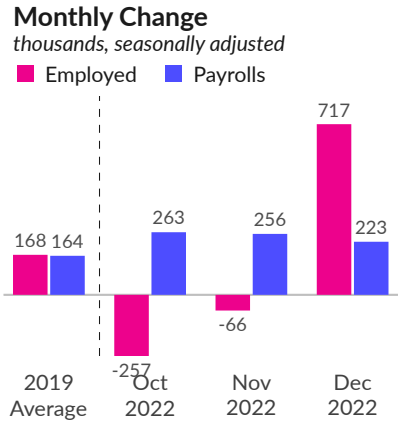
Overview

Two primary sources of employment data are households and employers. Households report activities, including employment and self-employment, while employers report payrolls.

In December 2022, establishments report 154.8 million **nonfarm payroll employees** (see —). The pre-COVID peak was 153.1 million in November 2019. Households report 158.9 million employed people, including the self-employed but not including armed forces, in the latest month, compared to a pre-COVID peak of 159.1 million (see —).

Private production and nonsupervisory workers are engaged in production, including working supervisors, or in other activities but not above the working supervisor level. In December 2022, this group totals 107.5 million, compared to a pre-COVID peak of 106.9 million (see —). Production and nonsupervisory workers comprise 81.5 percent of private nonfarm payrolls in December 2022.





Source: Bureau of Labor Statistics

In December 2022, seasonally-adjusted civilian employment increased by 717,000 (see ■), far above the 2019 average increase of 168,083 jobs per month. The US added a net total of 223,000 nonfarm payroll jobs in December 2022 (see ■), compared to a monthly average of 164,000 in 2019. The average of both surveys over the past three months shows an increase of 189,300 employees per month.

Employment Level
millions

	seasonally adjusted		*not seasonally adjusted*				
	Dec 2022	Nov 2022	Dec 2022	Nov 2022	2019 Avg.	2017 Avg.	2000 Avg.
Employed	159.2	158.5	158.9	158.7	157.5	153.3	136.9
Nonfarm Payrolls	153.7	153.5	154.8	155.0	150.9	146.6	132.0
Private Nonfarm Payrolls	131.3	131.1	132.0	132.1	128.3	124.3	111.2
Production & Nonsuperv.	106.9	106.8	107.5	107.8	105.6	102.4	90.5

Source: Bureau of Labor Statistics

Payroll Employment

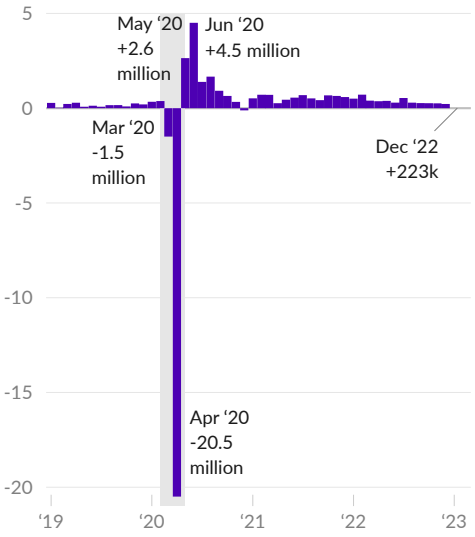
The Current Employment Statistics Program surveys around 130,000 businesses and government agencies each month. Payroll data from this survey provide insight into the overall health of the economy by indicating the pace of job growth. The payroll data also reliably identify changes in employment in individual industries.

Nonfarm payrolls increased by 223,000 in December 2022, following 256,000 jobs added in November, and 263,000 added in October (see ■). Average payroll growth was 247,300 over these three months, slightly below the average of 366,000 during the previous three months.

During March and April 2020, the US lost a combined 22 million jobs. Since May 2020, a total of 23.2 million jobs have been added, equivalent to 105.6 percent of those lost.

To maintain a steady payroll employment rate with population growth, the US needed to add 130,000 jobs in December 2022. Pre-pandemic, in 2019, the US was adding an average of 164,000 jobs per month.

Nonfarm Payroll Growth
one-month change, in millions, seasonally adjusted

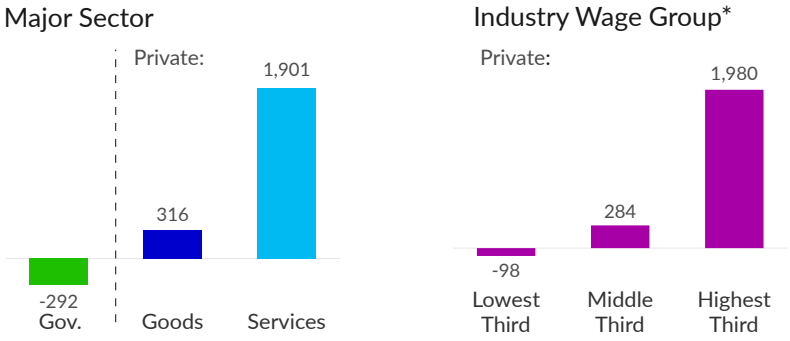


Source: Bureau of Labor Statistics

Over the three years ending December 2022, nonfarm payrolls increased by a total of 1,925,000. By sector, combined government payrolls fell by 292,000 (see ■), and private payrolls increased by a total of 2,217,000 over the three-year period. Private goods-producing industries added 316,000 jobs (see ■), and private service-providing industries added 1.9 million jobs (see ■).

Dividing the private industries into three wage groups, the lowest-wage industries lost 98,000 jobs since December 2019, the middle-wage industries gained 284,000 jobs, and the highest-wage industries added 1.98 million jobs (see ■).

Three-Year Change in Payrolls (December 2019 to December 2022)
not seasonally adjusted, thousands of jobs



*Wage groups are derived from 2019 average hourly earnings by 3-digit NAICS industry. Private industries without wage information added 54,200 jobs over the period.

Source: Bureau of Labor Statistics

The establishment survey provides reliable industry-level estimates of payroll employment. Household surveys have a higher potential to misclassify industries and are considered less-reliable for industry-level estimates of payroll employment.

Over the three years ending December 2022, the industry groups with the largest increase in payrolls were professional and technical services (+966,100), transportation and warehousing (+823,600), health care (+284,700), and construction (+241,000). The private industry groups with the least least job growth were accommodation (-330,700), food services and drinking places (-282,400), and arts, entertainment, and recreation (-94,600).

Nonfarm Payrolls by Industry Group

thousands | *seasonally adjusted* | | | | *not seasonally adjusted* | |

	December 2022	1-month change	Oct '22–Dec '22 average	Jul '22–Sep '22 average	December 2022	3-year change
Total nonfarm	153,743	223	247	366	154,771	1,925
Total private	131,302	220	214	312	132,006	2,217
Goods-producing	21,355	40	39	50	21,281	316
Mining & logging	644	4	3	2	643	-50
Construction	7,777	28	19	18	7,691	241
Manufacturing	12,934	8	17	30	12,947	125
Private service-providing	109,947	180	175	262	110,725	1,901
Wholesale trade	5,925	12	7	12	5,930	18
Retail trade	15,790	9	-3	5	16,177	75
Transportation & warehousing	6,487	5	-8	-1	6,861	824
Information	3,061	-5	7	10	3,066	160
Financial activities	8,997	5	9	6	9,029	190
Real estate & rental & leasing	2,384	8	4	5	2,393	49
Professional & technical services	10,613	17	26	27	10,643	966
Management	2,403	7	3	4	2,409	-24
Administrative & support	8,930	-29	-29	13	9,004	63
Educational services	3,866	4	8	15	3,939	86
Health care	16,688	55	54	62	16,768	285
Social assistance	4,335	20	19	19	4,344	82
Arts, entertainment, & recreation	2,368	31	14	10	2,225	-95
Accommodation	1,773	10	15	5	1,713	-331
Food services & drinking places	11,910	26	37	56	11,828	-282
Other services	5,777	14	16	16	5,759	-137
Utilities and waste management	1,025	1	1	3	1,029	22
Government	22,441	3	34	54	22,765	-292

Source: Bureau of Labor Statistics

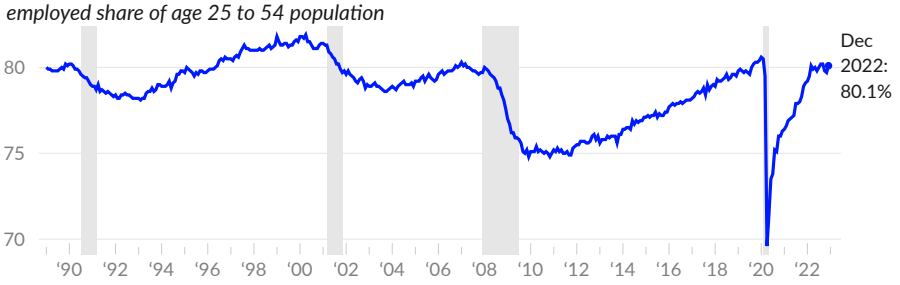
Summarizing employment changes by grouping industries can have the adverse effect of hiding changes within these industry groups. Additionally, industry groups can be vague or overly broad. The government and business chartbook sections contain more information on industry-level employment trends.

Employment Rates

The employed share of those ages 25 to 54 is an important measure of labor market utilization. In a tight labor market, the age group is employed at a very high rate. In December 2022, 80.1 percent of 25 to 54 years olds were employed, compared to 79.7 percent in November 2022. Over the past year, the age 25 to 54 employment rate increased one percentage point. The December 2022 rate was 1.3 percentage points (equivalent to 1.7 million workers) below the average rate of 81.4 during the tight labor market of 1999–2000.

Age 25 to 54 Employment Rate

employed share of age 25 to 54 population



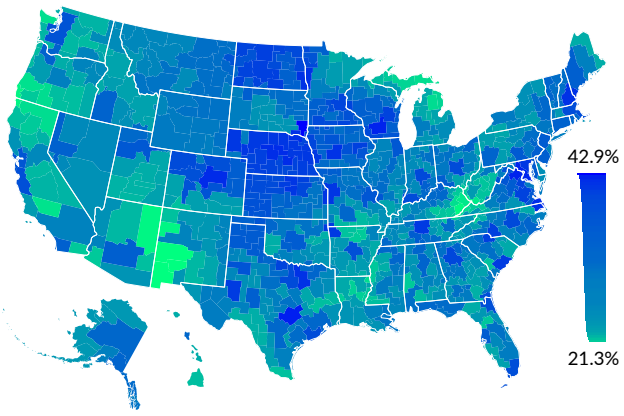
Source: Bureau of Labor Statistics

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 117.4 million fully-employed people in 2021, equivalent to 35.7 percent of the US population, compared to 105.5 million (32.3 percent) in 2020.

Employment rates vary dramatically by location. In 2021, 37.5 percent of commuter zones have at least a third of their population working full-time and full-year. A total of 19 commuter zones (out of 741), covering 2.6 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, 2021



Top 10:

42.9%	Sioux Falls, SD
40.3%	Austin, TX
39.9%	Madison, WI
39.9%	Washington, DC
39.2%	Denver, CO
38.9%	Virginia Beach, VA
38.7%	Fargo, ND
38.7%	Manchester, NH
38.6%	Dallas, TX
38.6%	Des Moines, IA

Bottom 10:

21.9%	Hazard, KY
22.1%	Gallup, NM
23.3%	Pikeville, KY
23.7%	Bakersfield, CA
23.8%	Roseburg, OR
24.1%	Port Angeles, WA
24.2%	Altamont, OR
24.9%	Marquette, MI
25.8%	Bluefield, WV
25.8%	Huntington, WV

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

Employment Rates of Largest Commuter Zones, 2021

	all ages		*age 25 to 54*	
	full-time & full-year	employed	full-time & full-year	employed
Los Angeles, CA	31.9	58.7	55.1	88.7
New York, NY	32.3	59.9	55.9	90.0
Chicago, IL	35.5	61.1	62.3	91.2
Houston, TX	34.1	58.3	59.4	89.0
Newark, NJ	35.2	61.4	61.3	91.0
Philadelphia, PA	35.0	61.8	61.9	91.2
Washington, DC	39.9	64.3	67.5	93.4
Boston, MA	36.4	65.5	63.0	93.4
Atlanta, GA	36.8	61.7	63.3	91.2
Detroit, MI	31.0	59.9	55.4	89.8
San Francisco, CA	35.7	62.9	61.0	91.5
Dallas, TX	38.6	61.0	65.7	90.6
Phoenix, AZ	34.8	59.0	61.9	89.6
Seattle, WA	35.9	63.7	60.1	92.4
Miami, FL	36.3	59.6	62.2	90.2

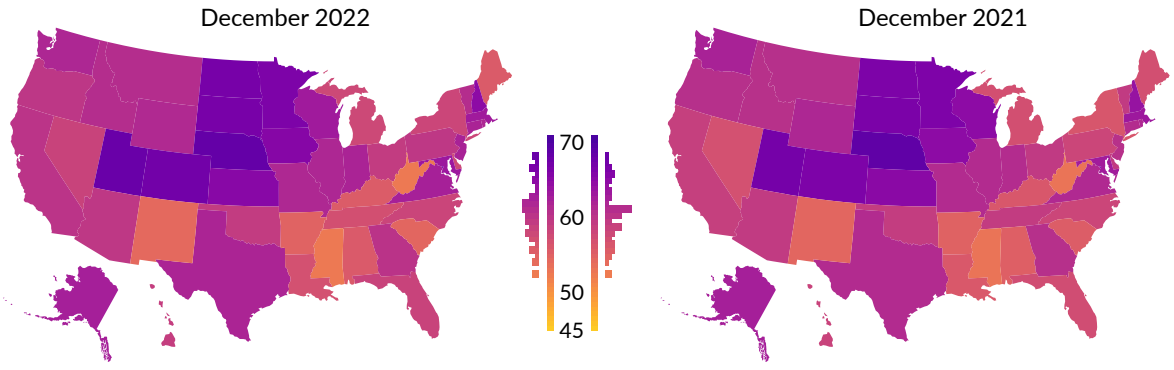
Source: American Community Survey, Dorn, Author's Calculations

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 2022, the age 16 and older employment rate is below 60 percent in 24 states. One year prior, in December 2021, the employment rate was below 60 percent in 23 states. The rate is above 65 percent in eight states, in the latest month, and in seven states in December 2021.

The states with the highest employment rates in December 2022 are Nebraska (68.0%), the District of Columbia (67.8%), and Utah (67.6%). The states with the lowest employment rates are Mississippi (52.2%), West Virginia (52.3%), and New Mexico (53.9%).

Employment Rate by State

employed share of age 16+ population, percent



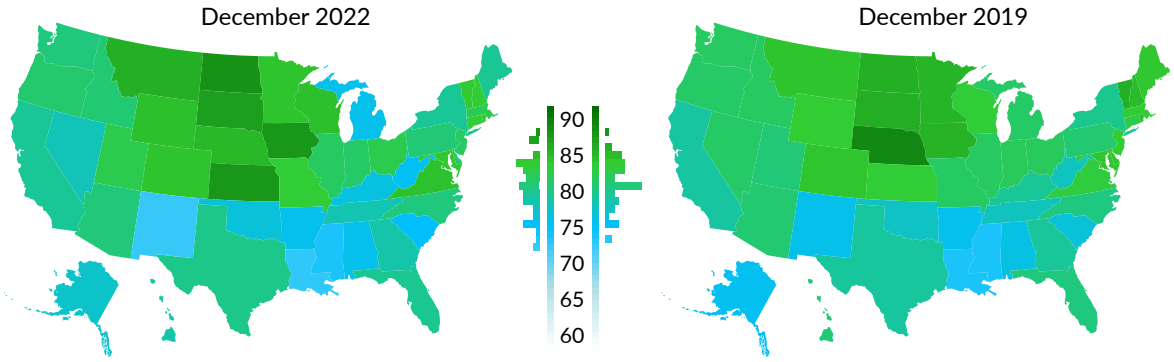
Source: Bureau of Labor Statistics

A tight local labor market will employ those ages 25 to 54 at a very high rate, barring any local labor supply constraints, for example availability or cost of child care or high rates of disability. In December 2022, the states with the highest employment rates for 25 to 54 year olds are North Dakota (88.0 percent), Iowa (87.6 percent), and Kansas (87.6 percent).

The age 25 to 54 employment rate is lower in December 2022 than it was in December 2019 in 33 states, and higher in 18 states. Comparing the latest three months to the previous three months, the seasonally-adjusted age 25 to 54 employment rate decreased in 26 states, increased in 20 states, and was unchanged in five states.

Age 25 to 54 Employment Rate by State

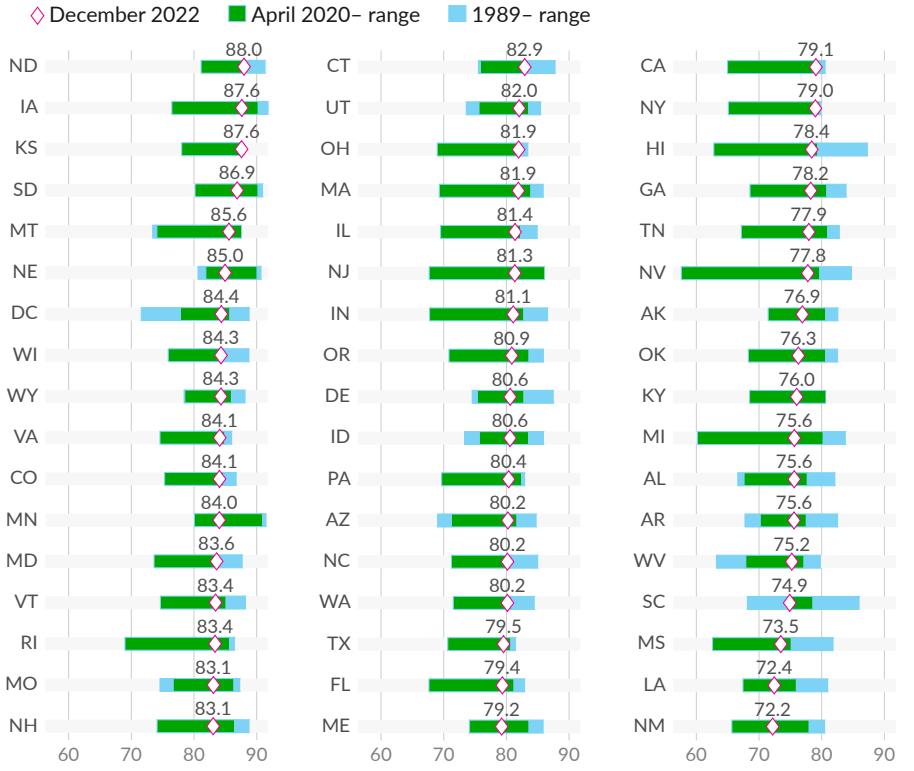
employed share of age 25 to 54 population, percent, seasonally adjusted



Source: Author's Calculations from CPS

Employment Rate by State

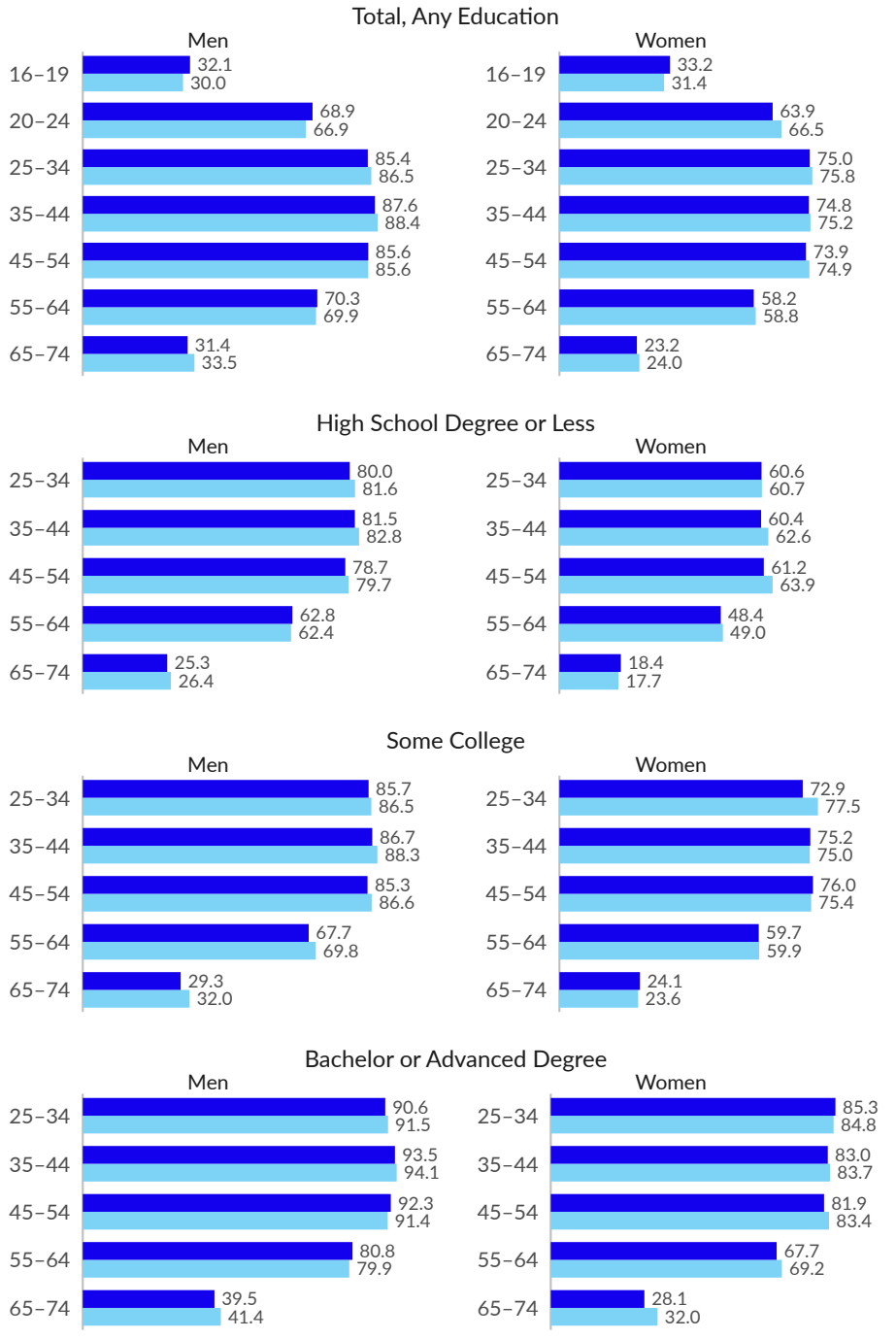
employed share of age 25 to 54 population, percent, seasonally adjusted



Source: Author's Calculations from CPS

Employment rates vary over time, but also by age, gender, and education, among other factors. Over the three months ending December 2022, the employment rate for most subgroups is about the same as it was before the pandemic. At a given point in time, employment rates tend to increase with education and tend to peak during ages 25 to 54. Within most age groups, employment rates are higher for men, though the gap has narrowed over the long-run.

Employment Rates ■ December 2022 ■ December 2019
employed share of age group, percent, three-month average



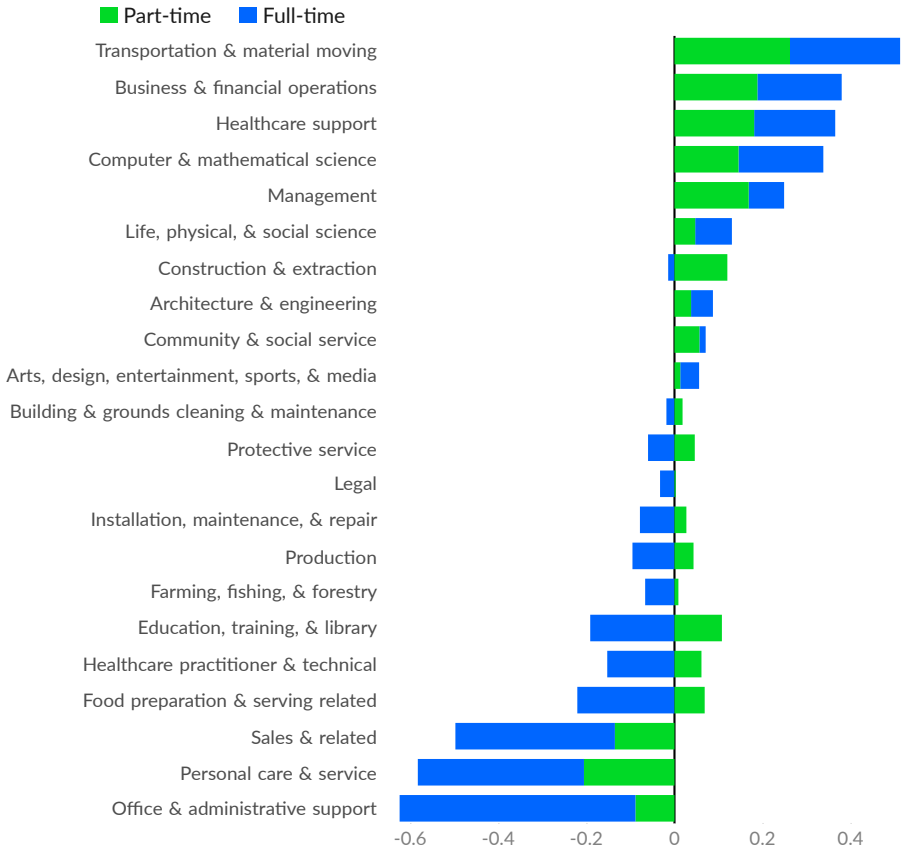
Source: Author's Calculations from CPS

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 2022, compared to the same three months prior to the pandemic (ending December 2019).

Change in Occupational Employment, December 2022

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



Source: Author's Calculation from CPS

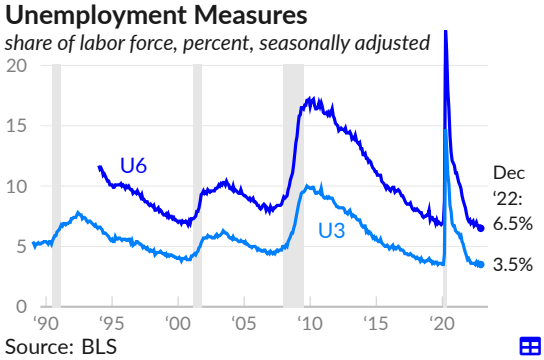
Unemployment

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 (the employed and unemployed). BLS reports 5.7 million unemployed people in December 2022, and an unemployment rate of 3.5 percent (see —), in line with the November 2022 rate of 3.6 percent, but slightly below the December 2021 rate of 3.9 percent.

BLS also report a broader measure of unemployment, known as U6 or labor under-utilization. Labor under-utilization includes U3 unemployment, as well as people who have given up looking for work and people who work part-time but want to work full-time. In December 2022, the labor under-utilization rate is 6.5 percent (see —).

Unemployment Measures

share of labor force, percent, seasonally adjusted

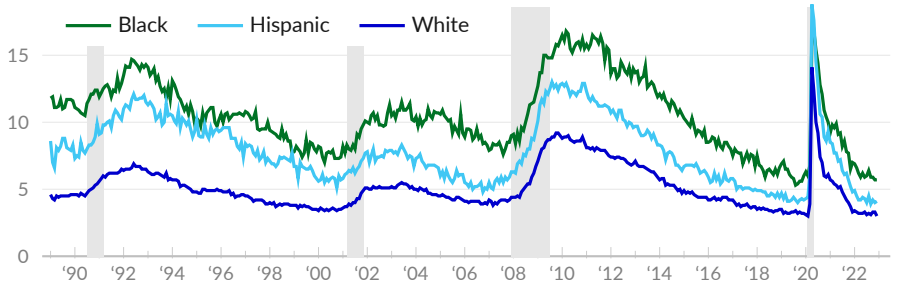


Source: BLS

Periods of unemployment are more common for disadvantaged groups. The black or African American unemployment rate is typically double the white unemployment rate. Employment opportunities for disadvantaged groups are more-dependent on current labor market conditions. A very tight labor market reduces racial discrimination in hiring, while disadvantaged groups are more likely to lose jobs in a downturn. Since February 2020, the black unemployment rate has decreased by 0.3 percentage point to 5.7 percent (see —).

Unemployment Rate

unemployed share of labor force, percent, seasonally adjusted



Source: Bureau of Labor Statistics

Unemployment Measures

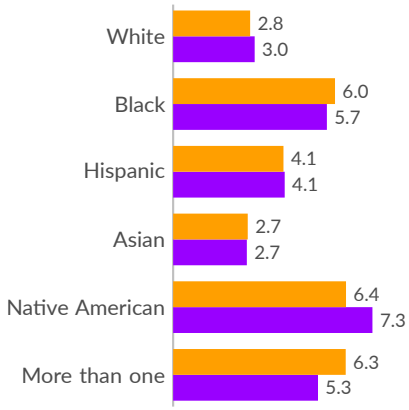
seasonally adjusted, percent

	Dec '22	Nov '22	Oct '22	Sep '22	Aug '22	Jul '22	GFC peak	Date
Under-utilization Rate (U6)	6.5	6.7	6.7	6.7	7.0	6.8	17.2	Dec '09
Unemployment Rate (U3)	3.5	3.6	3.7	3.5	3.7	3.5	10.0	Oct '09
by race/ethnicity:								
White	3.0	3.3	3.3	3.1	3.2	3.1	9.2	Oct '09
Black	5.7	5.7	5.9	5.9	6.4	6.0	16.8	Mar '10
Hispanic	4.1	4.0	4.2	3.9	4.5	4.0	13.0	Aug '09
Asian	2.4	2.6	2.9	2.5	2.8	2.6	8.4	Dec '09

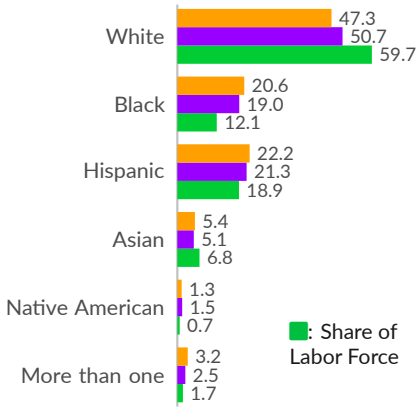
Source: Bureau of Labor Statistics

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
unemployed share of labor force
age 18 to 64
not seasonally adjusted



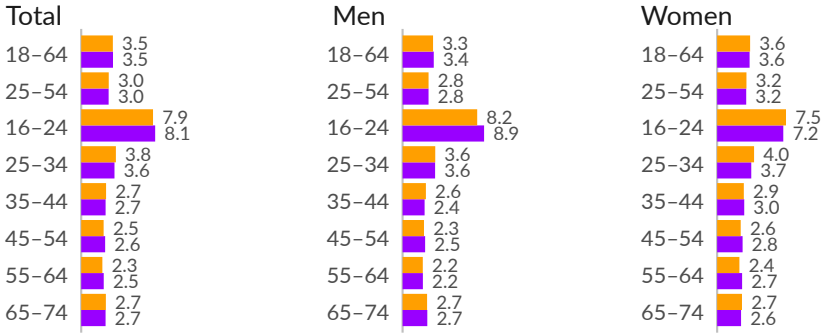
Share of Unemployed
group share of unemployed
age 18 to 64
not seasonally adjusted



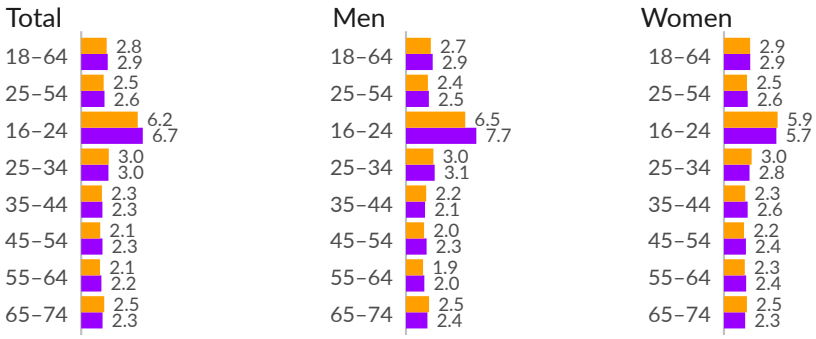
Source: Author's calculations from CPS

Unemployment Rate

Total, any race or ethnicity

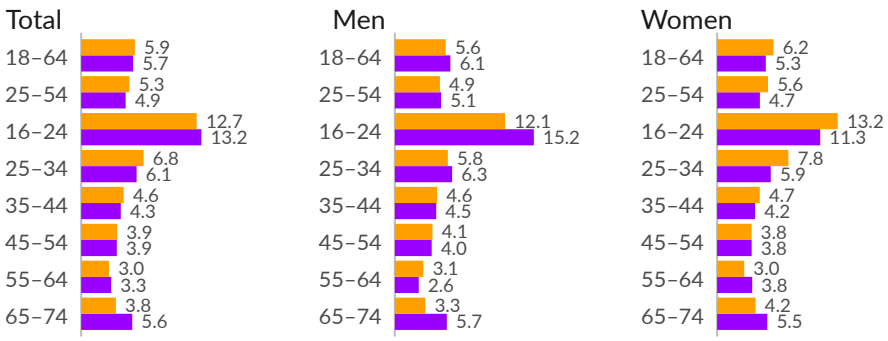


White, non-Hispanic, alone

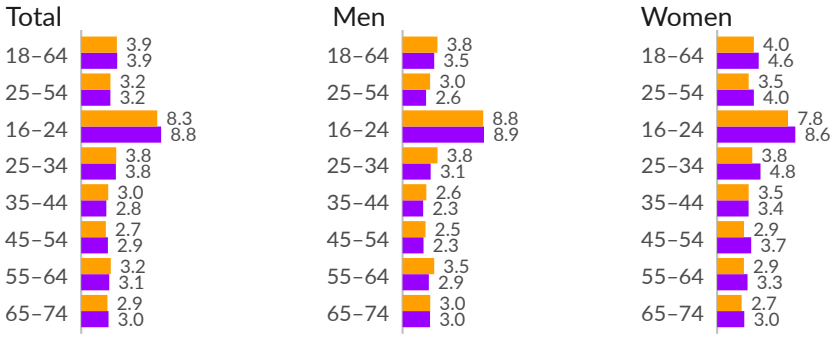


Unemployment Rate, Continued

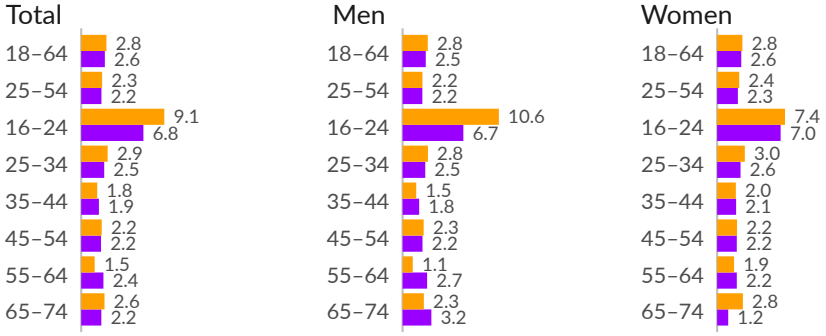
Black, non-Hispanic, alone



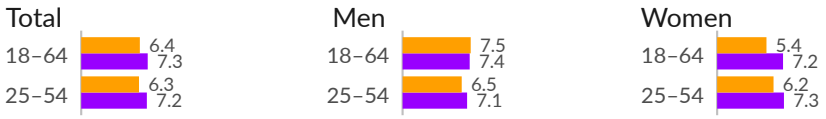
Hispanic, any race



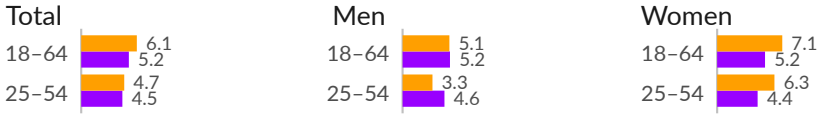
Asian or Hawaiian/Pacific Islander, non-Hispanic, alone



Native American/American Indian or Alaskan Native, non-Hispanic, alone



More than one race, non-Hispanic



Source: Author's Calculations from CPS

Reasons for Unemployment

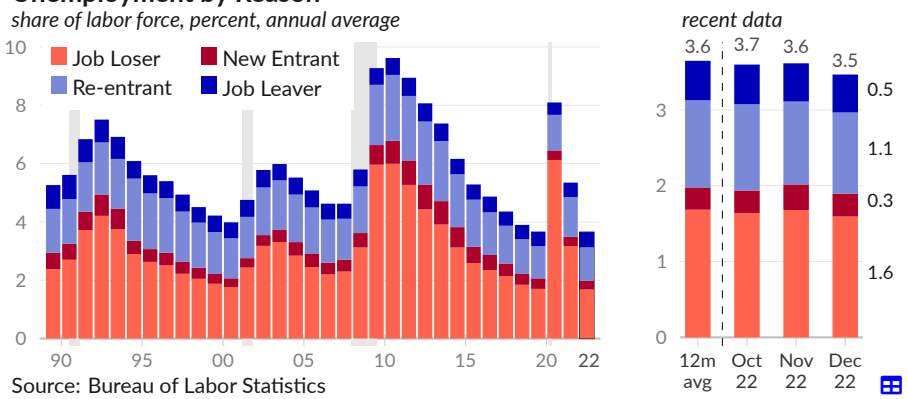
There are several **reasons for unemployment**. In December 2022, 2.6 million people, or 1.6 percent of the labor force, were unemployed from losing their job (see ■). An additional 0.5 percent voluntarily left a job (see ■). Re-entrants, people who left the labor force but are looking for a new job, comprised 1.1 percent (see ■). Lastly, 0.3 percent of the labor force were new entrants to the labor market, looking for their first job (see ■).

The mixture of reasons for unemployment may reflect the existing economic conditions. In a downturn, workers who lose jobs are a larger share of the unemployed. A downturn also makes it harder for young people to find their first job, increasing their share of the total. In contrast, an economic boom reduces job losses and improves job-finding.

Other reasons for unemployment claim a larger share of the total during a boom. An economic boom can entice people to re-enter the job market, and encourage workers to quit and look for a new job. The overall prevalence of these categories, however, is also *reduced* during a boom, by an improved job-finding rate.

Unemployment by Reason

share of labor force, percent, annual average



Source: Bureau of Labor Statistics

Many job losses are temporary, particularly during the COVID-19 recession. Other job separations are permanent. In December 2022, temporary layoffs were 0.5 percent of the labor force. Permanent job losses were 0.8 percent of labor force.

Unemployment by Reason

share of labor force, percent

	Dec 2022	Nov 2022	Oct 2022	12m Avg.	Apr 2020	2020	2019	2009 –'11
Unemployed, Any Reason	3.5	3.6	3.7	3.6	14.7	8.1	3.7	9.3
■ Job Loser	1.6	1.7	1.6	1.7	13.2	6.1	1.7	5.7
Temporary Layoff	0.5	0.5	0.5	0.5	11.5	4.0	0.5	0.9
Permanent Separation	0.8	0.8	0.8	0.8	1.2	1.7	0.8	3.9
■ Re-entrant	1.1	1.1	1.1	1.1	0.9	1.2	1.1	2.2
■ New entrant	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.8
■ Job Leaver	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.6
See also:								
Employed, Not at Work*	3.0	3.2	3.3	3.8	7.4	4.2	3.2	3.3

Source: Bureau of Labor Statistics, Author
* During the COVID-19 shutdowns some unemployed were incorrectly counted as employed but not at work.

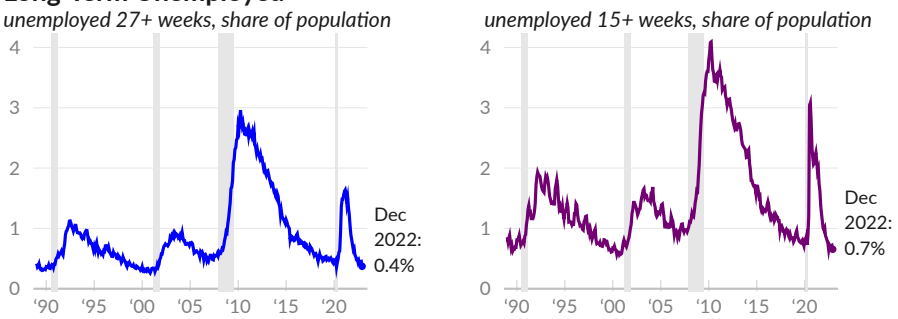
Duration of Unemployment

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 2022, BLS reports that 0.37 percent of the age 16 and older population have been unemployed for 27 weeks or longer, compared to 0.73 percent in December 2021 (see —). This measure of **long-term unemployment** peaked at 2.96 percent of the population in April 2010, but had fallen to 0.42 percent in December 2019.

In December 2022, 0.65 percent of those age 16 and older have been unemployed for at least 15 weeks (see —), following 0.72 percent in November 2022, and 0.71 percent in October 2022.

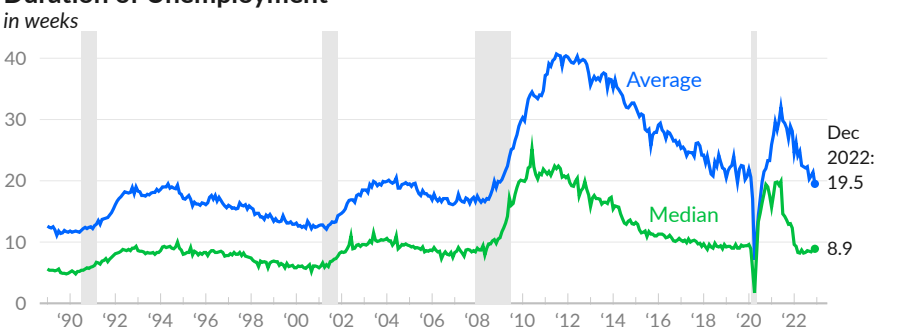
Long-Term Unemployed



Source: Bureau of Labor Statistics

Among those who are unemployed in December 2022, the average (mean) **duration of unemployment** is 19.5 weeks (see —), and the typical (median) duration of unemployment is 8.9 weeks (see —). 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



Source: Bureau of Labor Statistics

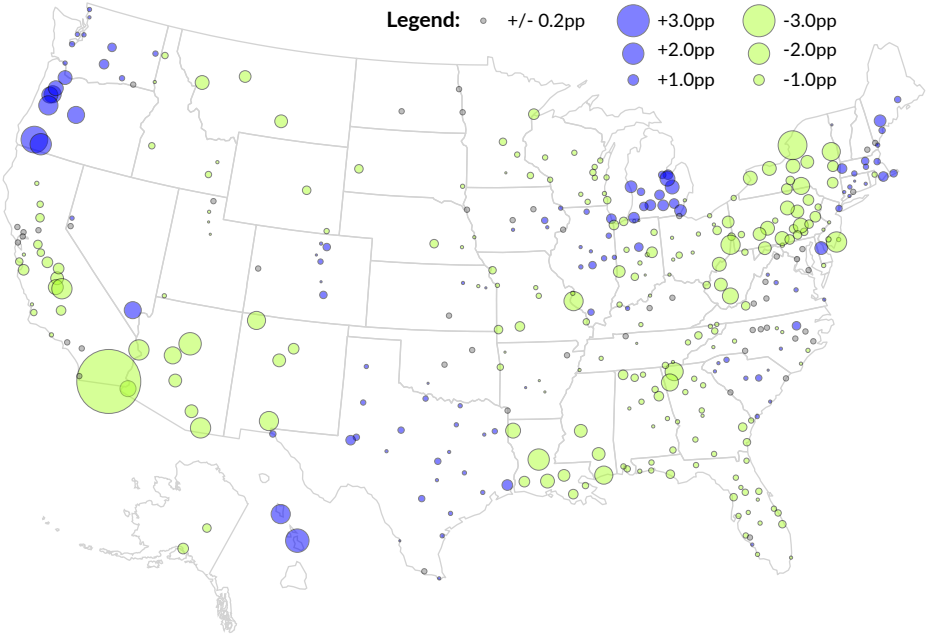
Unemployment by Metro Area

The Bureau of Labor Statistics produce local area estimates of unemployment, including the **unemployment rate for metro areas**. The following map shows changes since 2019 in metro area unemployment rates. An increase in the unemployment rate is shown by a blue circle and a decrease is shown by a light green circle; circle size is the magnitude of the change.

From December 2019 to December 2022, unemployment rates fell by 0.3 percentage point or more in 221 metro areas, and increased by 0.3 percentage point or more in 117 metro areas. Recent local unemployment rates were within 0.2 percentage points of their pre-pandemic level in 49 metro areas.

Change in Unemployment Rate by Metro Area

from December 2019 to December 2022, percentage points



Largest MSAs:

		Core City	Dec 22	Dec 19	Labor Force	Pct Ch*
+0.6	•	New York, NY	3.8	3.2	10,052,600	-3.5
unch.	•	Los Angeles, CA	3.9	3.7	6,532,500	-4.8
+0.9	•	Chicago, IL	4.2	3.3	4,892,200	-1.5
+0.4	•	Dallas, TX	3.2	2.8	4,327,800	8.4
+0.4	•	Houston, TX	3.9	3.5	3,565,900	4.4
unch.	•	Washington, DC	2.8	2.7	3,364,600	-4.5
-0.5	•	Atlanta, GA	2.6	3.1	3,216,100	2.8
-0.3	•	Philadelphia, PA	3.4	3.7	3,197,000	-0.3
-0.3	•	Miami, FL	1.9	2.2	3,178,900	0.9
+0.6	•	Boston, MA	2.9	2.3	2,788,200	-2.0
-1.2	•	Phoenix, AZ	2.7	3.9	2,590,400	5.6

Source: Bureau of Labor Statistics; Full Table:
*Pct Ch is percent change in labor force from December 2019 to December 2022

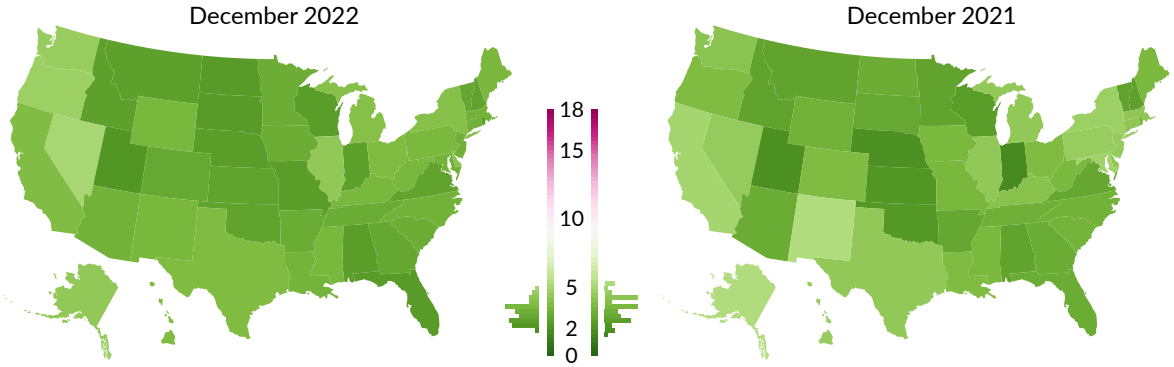
Unemployment by State

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 2022, all 50 states and DC had unemployment rates below eight percent, and the unemployment rate was above five percent in no states. Three months prior, in September 2022, no states unemployment rate was above eight percent, and no states were above five percent. In the peak of the COVID-19 pandemic shutdowns, in April 2020, the unemployment rate was above eight percent in 49 states, and above five percent in every state.

The states with the highest unemployment rates in December 2022 are Nevada (4.9%), the District of Columbia (4.5%), and Oregon (4.5%). The states with the lowest unemployment rates are Utah (2.0%), South Dakota (2.2%), and North Dakota (2.2%).

Unemployment Rate by State

unemployed share of labor force, percent, not seasonally adjusted



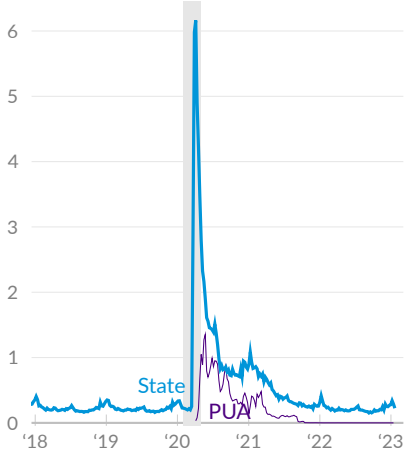
Source: Bureau of Labor Statistics

Jobless Claims

The Department of Labor report 224,481 actual **new claims for unemployment insurance** (UI) under state programs (see —) during the week ending January 21, 2023, a one-week decrease of 63,800. Over the past four weeks, new claims have averaged 282,900 per week. During the same four-week period last year, there were an average of 333,500 new claims per week.

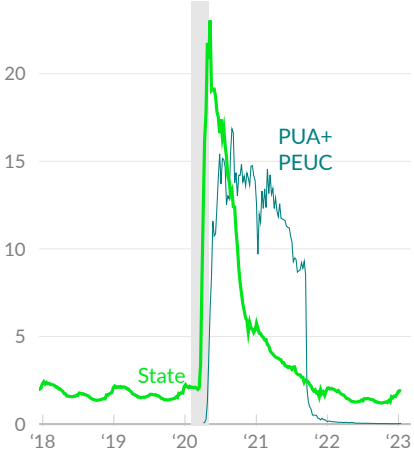
For the week ending January 14, 2023, the Department of Labor report 1,873,829 **continued claims** for unemployment insurance (insured unemployed) under state programs (see —), a one-week decrease of 34,800. One year prior, during the week of January 15, 2022, there were an average of 2,001,200 insured 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, 2021, reducing the income of millions of families.

Labor Force Participation

People who currently have a job, are looking for a job, or are on temporary layoff are all considered labor force participants. The share of the US population that participates in the labor force at a given point in time, or the **labor force participation rate**, is affected by many factors, including demographics and short- and long-term economic conditions.

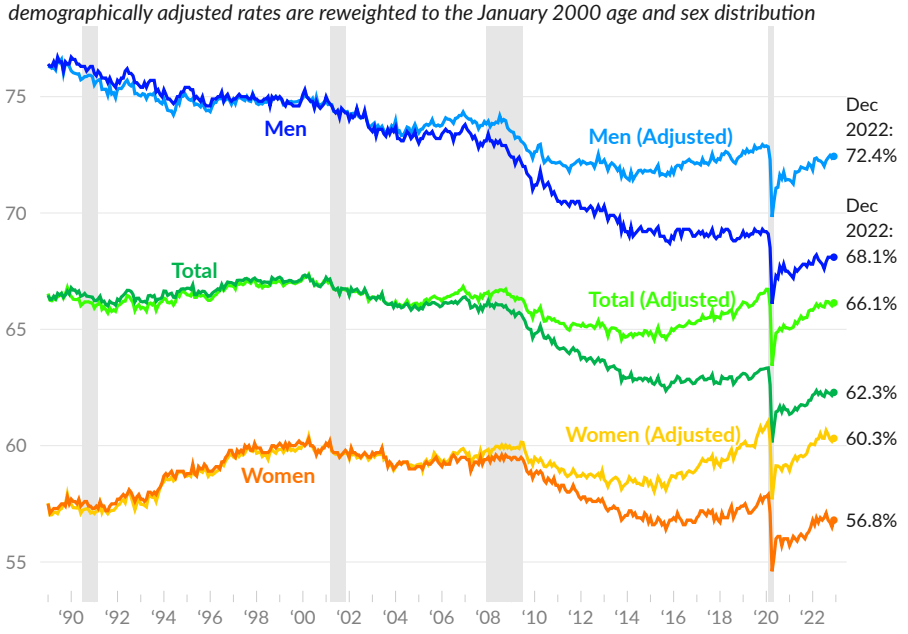
Over the past two decades, the age composition of the population has lowered labor force participation rates, all else equal. Reweighting the population to match the age composition in 2000 suggests the aging of the US population since 2000 has reduced total labor force participation by 3.8 percentage points.

In the latest data, covering December 2022, 62.3 percent of people age 16 and older are in the labor force (see —), compared to 62.2 percent in November and 62.2 percent in October. In February 2020, when US confirmed cases of COVID-19 were still low, the labor force participation rate was 63.3 percent.

In December 2022, 68.1 percent of men age 16 and older are in the labor force (see —), compared to 56.8 percent of women (see —). Since February 2020, labor force participation has decreased 1.1 percentage points among men, and decreased one percentage point among women.

Labor Force Participation Rate

labor force as share of age 16 and older population, percent
demographically adjusted rates are reweighted to the January 2000 age and sex distribution

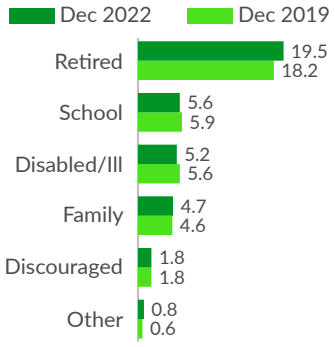


Sources: BLS (Latest: December 2022); CPS (Latest: December 2022)

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.

Nonparticipants
share of age 16+ population, percent



Source: Author's CPS calculations

Nonparticipants age 16 and older total 99.8 million in December 2022, and make up 37.7 percent of the age 16 or older population, compared to 36.6 percent in December 2019. About half of nonparticipants, and 19.5 percent of the population, are retirees in December 2022 (see ■), compared to 18.2 percent in December 2019 (see ■).

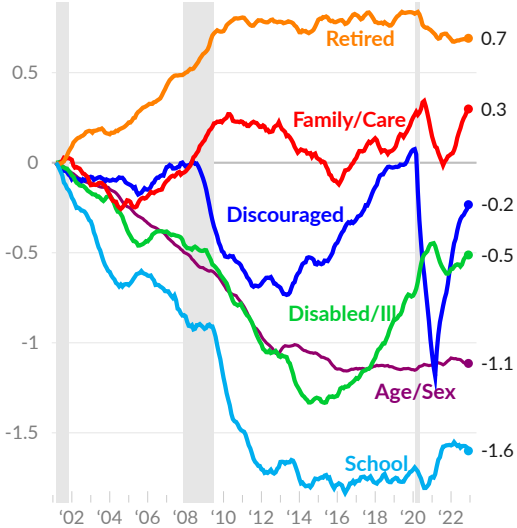
Disability or illness keeps an additional 5.2 percent out of the labor force in December 2022, compared to 5.6 percent in December 2019. Students who are out of the labor force make up 5.6 percent in December 2022 and 5.9 percent in December 2019, while unpaid caregivers are 4.7 percent in December 2022 and 4.6 percent in December 2019.

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 2022, an additional 2.7 percent of the age 18 to 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 to 64 labor force by 1.6 percent (see —). Disability and illness reduce the labor force by another 0.5 percent (see —). Less retirement among those age 18 to 64 increases the labor force by 0.7 percent, over the period (see —).

Contribution to Labor Force Participation
Age 18 to 64, cumulative contribution since March 2001
percentage points, 12-month moving average



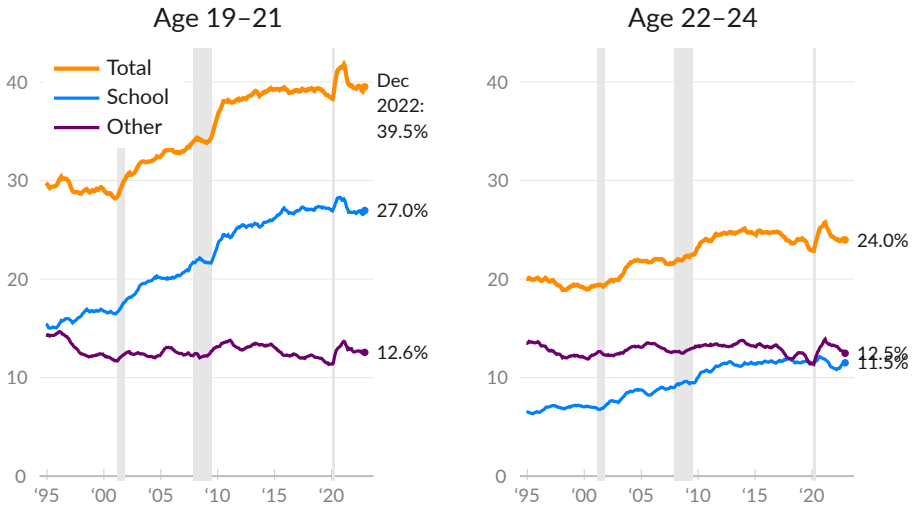
Source: Author's Calculations from CPS

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, 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 (see —). The overall increase is nearly entirely accounted for by increased college enrollment (see —).

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 2022, the rate of non-participation is 39.5 percent for 19 to 21 year olds and 24.0 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

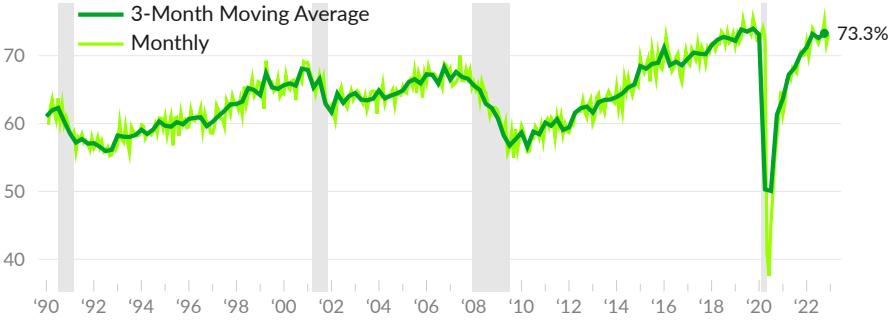
Labor Force Flows

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 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 2022, 6.9 million people were newly employed (on a gross basis). Of these, 73.1 percent were not looking for work in the prior month (see —). Over the past three months, an average of 73.3 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 2019, 72.2 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



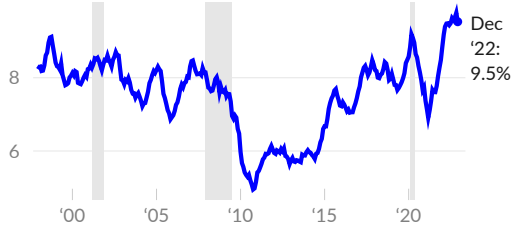
Source: Bureau of Labor Statistics

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 2022, 9.5 percent of 25 to 54 year olds who were out of the labor force due to disability or illness one year prior became employed (see —). Pre-pandemic, in 2019, 8.0 percent of those in the category found a job. The 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

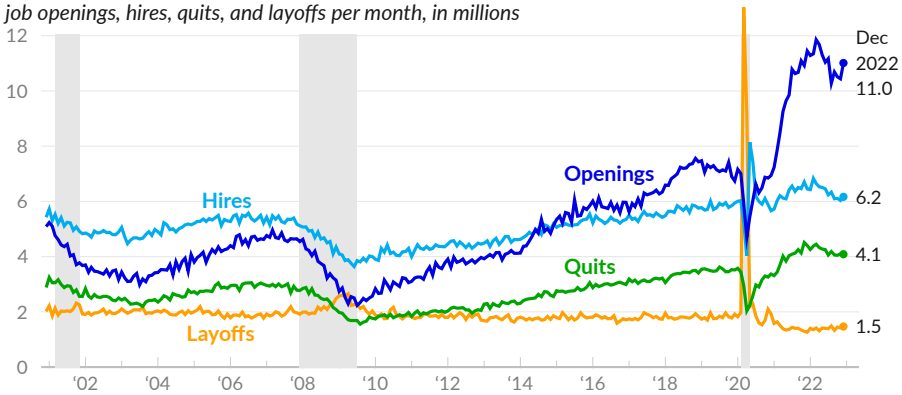
Job Openings and Labor Turnover Survey

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 December 2022, there were 11.0 million total nonfarm job openings (see —) and 6.2 million hires completed (see —). In the same month, there were 5.9 million nonfarm separations, including 1.5 million layoffs (see —), 4.1 million quits (see —), and 336,000 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 per month, in millions

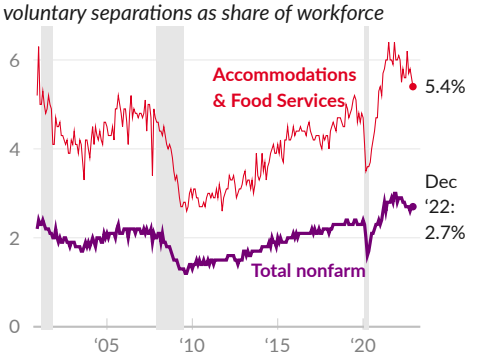


Source: Bureau of Labor Statistics

The number of people who voluntarily separate from 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

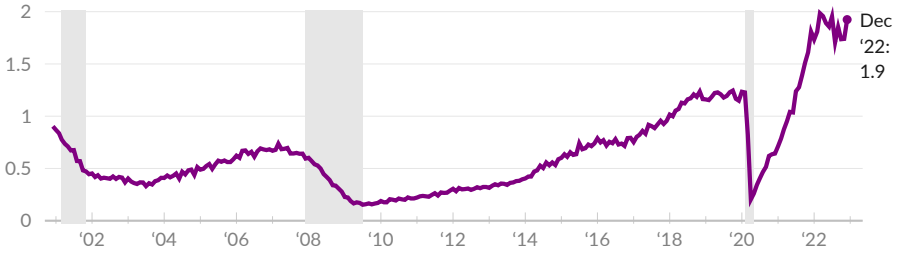
The quits rate is cyclical within the accommodations and food services industries (which includes restaurants), and tends to rise when a tight labor market pulls people out of restaurant jobs and into higher paying jobs in other industries.

In December 2022, the total quits rate in all industries was 2.7 percent (see —). The accommodations and food services quits rate was 5.4 percent (see —); the series high for the industry group was 6.4 percent in July 2021.

A high ratio of job openings to unemployed indicates a tight labor market, for example from low levels of unemployment, or if completing a new hire is taking more time. In December 2022, there were 5.7 million unemployed people and 11.0 million job openings, therefore the ratio of job openings per unemployed person was 1.9 (see —). In November 2022 the ratio was 1.7, and during 2019 the average ratio was 1.2.

Job Openings Per Unemployed Person

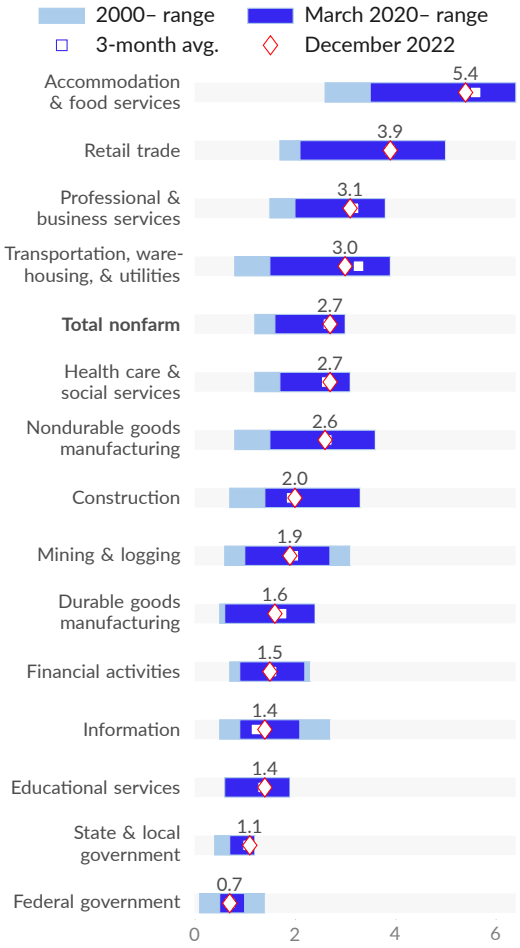
job openings divided by total unemployment



Source: Bureau of Labor Statistics

Monthly Quits Rate by Industry

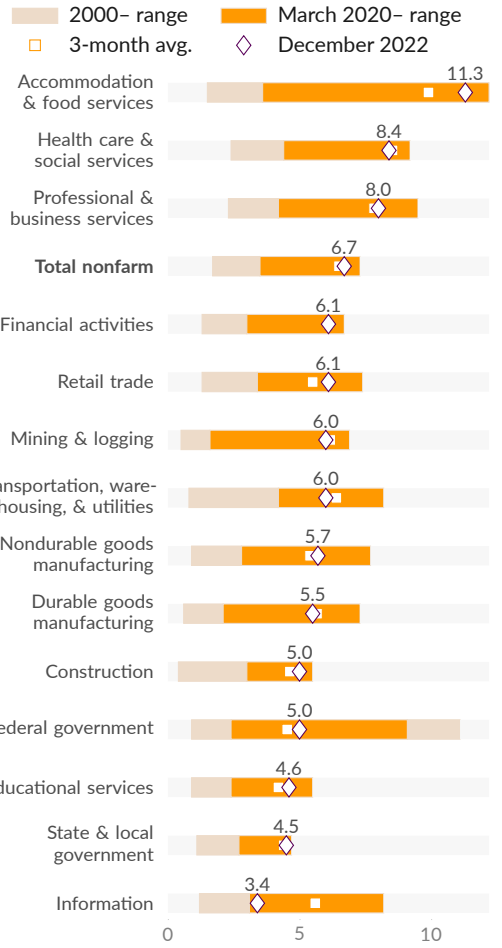
share of employment, percent



Source: Bureau of Labor Statistics

Monthly Job Openings Rate by Industry

share of employment, percent



Source: Bureau of Labor Statistics

Job Switching

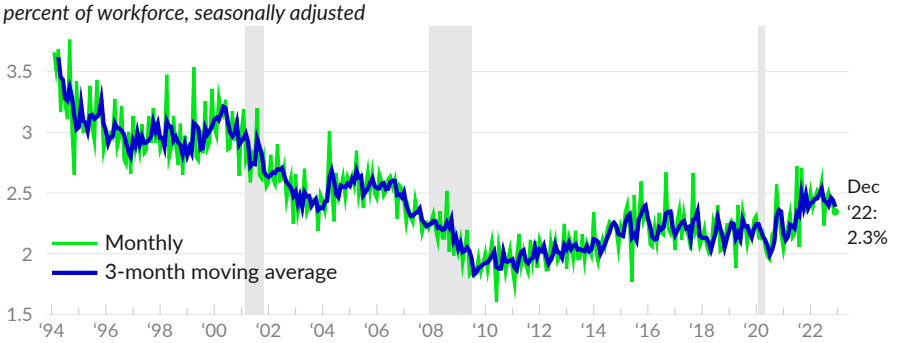
Job switching is important for getting people into the jobs where they are most productive. Individuals boost labor productivity by switching to a more productive industry or moving from a less-productive firm to a more-productive firm.

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.

More recent data show a slight increase in job switching rates. In December 2022, 2.3 percent of the workforce had a different employer than the previous month, after seasonal adjustment (see —). Smoothed data show an average of 2.4 percent of the workforce with a new employer during the three months ending December 2022 (see —). Prior to COVID-19, in 2019 Q4, a monthly average of 2.2 percent of the workforce switched jobs.

New Employer

percent of workforce, seasonally adjusted



Source: Author's Calculations from CPS

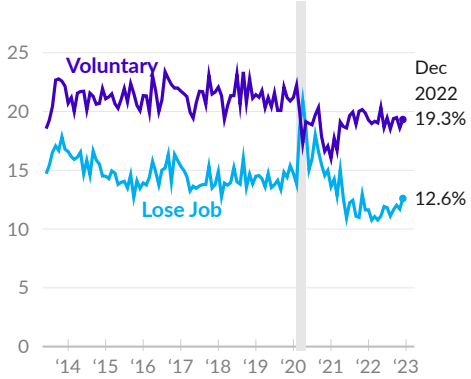
The monthly Survey of Consumer Expectations from the Federal Reserve Bank of New York asks people how likely they are to either lose or leave a job. **Expected separations** are specifically the average perceived probability, or likelihood, of separating from a job in the next 12 months.

In December 2022, the perceived likelihood of leaving one's job voluntarily in the next 12 months averages 19.3 percent, compared to 21.0 percent in 2019 (see —). In the latest month, the perceived probability losing one's job is 12.6 percent, compared to 14.3 percent in 2019 (see —).

During the pandemic, in April 2020, job loss expectations exceeded job leaving expectations. In December 2022, job leaving expectations exceed job loss expectations by 6.7 percentage points, compared to 6.8 percentage points in 2019.

Expected Separations

mean probability of separation, percent



Source: Federal Reserve Bank of New York

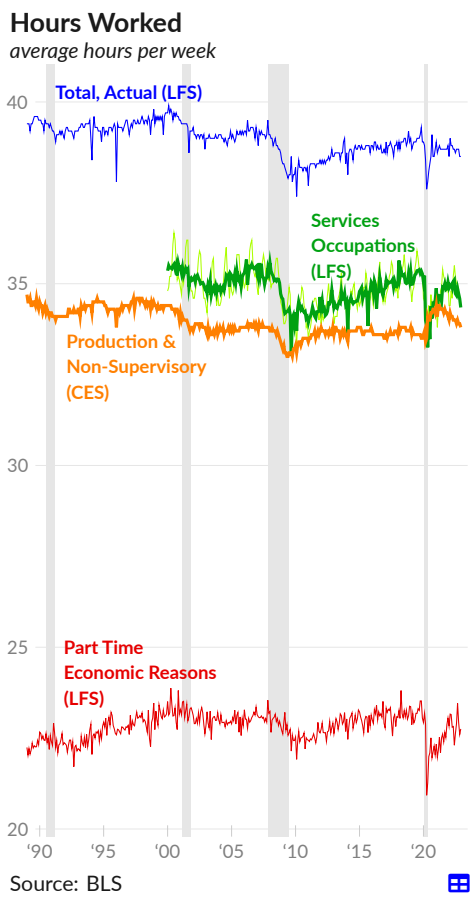
Hours Worked

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 38.5 in December 2022 (see —), slightly below the 38.8 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 34.3 average weekly hours in December 2022, substantially below the 35.2 average in February 2020. Those part-time for economic reasons (see —) work an average of 22.8 hours per week in December 2022.

In December 2022, production and non-supervisory workers (see —), about four of every five employees, worked 33.8 hours per week on average, in line with the 33.7 average weekly hours in February 2020 and slightly below the 1998–2000 average of 34.4 hours.



Source: BLS

Hours Worked, Various Measures

average hours per week, seasonally adjusted

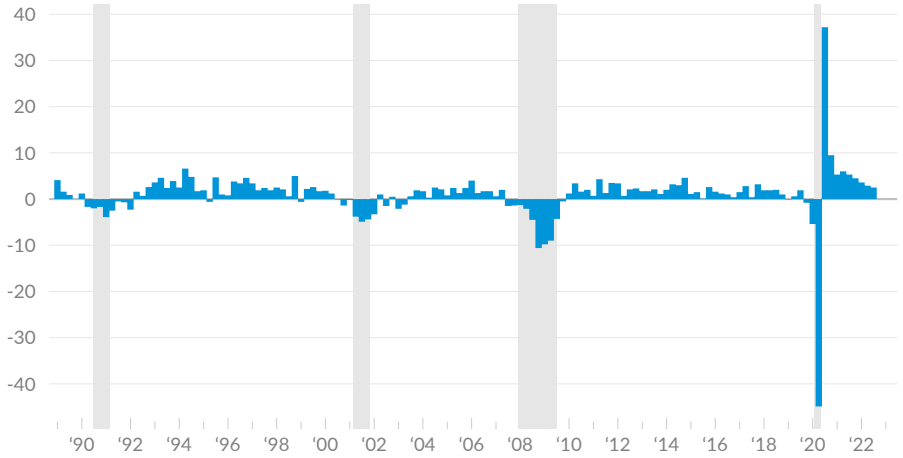
	Dec '22	Nov '22	Oct '22	Dec '21	Nov '21	Oct '21	Dec '20
Total Actual, CES	34.3	34.4	34.5	34.8	34.8	34.8	34.7
Total Actual, LFS (—)	38.5	38.5	38.7	38.8	38.7	38.7	38.7
Total Usual, CPS	38.6	38.6	38.7	38.7	38.7	38.7	38.7
Production & Non-Supervisory, CES (—)	33.8	33.9	33.9	34.1	34.2	34.2	34.2
Services Occupations, LFS (—)	34.3	34.6	34.7	35.0	34.9	34.8	34.6
Part-time for Economic Reasons, LFS (—)	22.8	22.6	22.9	23.1	22.9	22.5	22.0

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 2.5 percent in 2022 Q3, following an increase of 2.9 percent in 2022 Q2. From 2017 through 2019, total hours worked increased at an average rate of 1.4 percent. Since 2019, hours worked have increased by a total of 1.3 percent.

Aggregate Hours Worked

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



Source: Bureau of Labor Statistics

Nonstandard Work Arrangements

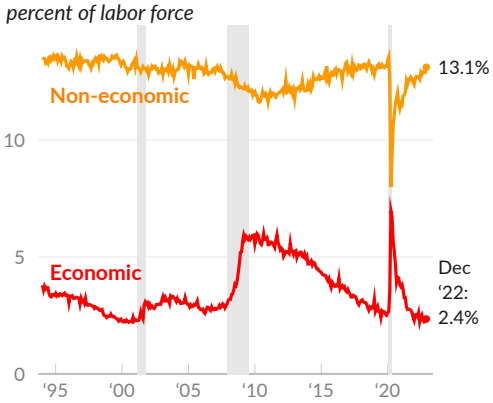
Many workers do not have standard work arrangements, either by choice or as the result of not being able to find standard work arrangements. Many workers are employed part-time, part-year, or both. Some workers have more than one job. Additionally, a portion of the workforce is considered self-employed.

Part-Time Work

Around 26 million people work part-time, defined as fewer than 35 hours per week, and the reasons for doing so vary. The Bureau of Labor Statistics classify part-time workers who would prefer full-time work as involuntary or **part time for economic reasons**. 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.

Voluntary part-time workers, or those **part-time for non-economic reasons**, do not necessarily want more hours of work. The category includes those who work fewer hours for health, childcare, personal or family reasons, those who are retired or have a limit on earnings, and those with jobs where full-time is less than 35 hours per week.

Part Time, by Reason
percent of labor force



Source: Bureau of Labor Statistics

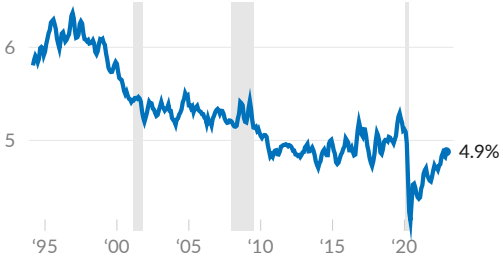
In December 2022, 3.9 million people worked part-time for economic reasons, equivalent to 2.4 percent of the labor force (see —). In 2019, an average of 2.7 percent of the labor force worked part-time for economic reasons; in 2010, following the great recession, the rate was 5.8 percent.

Voluntary part-time workers total 21.6 million in December 2022, or 13.1 percent of the labor force (see —). The category made up 13.1 percent of the labor force in 2019, on average.

More Than One Job

Over a given period of time, some people work more than one job. The household survey identifying people with more than one job asks about employment during a specific reference week. Respondents who work more than one job during the reference week are considered multiple jobholders; those who work multiple jobs over a month or year, but work one job in the survey reference week, are not.

Multiple Jobholders
percent of workers, 3-month moving average



Source: Bureau of Labor Statistics

In December 2022, a seasonally-adjusted total of 8.0 million people **worked more than one job** during the survey reference week, equivalent to 5.1 percent of workers. Over the three months ending December 2022, an average of 4.9 percent of workers were multiple jobholders (see —). In 2019, 5.1 percent of workers had more than one job during the survey reference week.

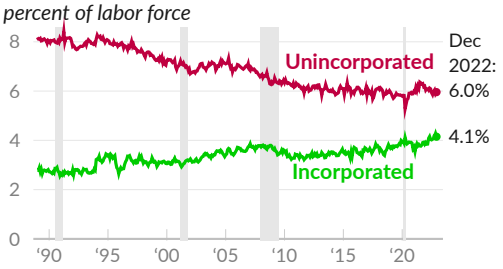
Self-Employment

Workers are considered **self-employed** if they work for profit or fees in their own business, profession, trade, or farm. Some self-employed have incorporated their business, and are similar to wage and salary workers in that they are paid by their business. Self-employment can offer more flexibility than traditional jobs, in some cases, but can also be less stable. The category includes people who work for profit but do not make any profits, for example.

As of December 2022, there are 9.8 million **unincorporated self-employed**, equivalent to 6.0 percent of the labor force (see —). Over the past year, the unincorporated self-employed made up an average of 6.0 percent of the labor force, compared to an average of 5.8 percent in 2019. From 1989 to 1994, the category made up an average of 8.0 percent of the labor force.

Self-Employed

percent of labor force



Source: Bureau of Labor Statistics, Author

The **incorporated self-employed** total 6.8 million in December 2022, equivalent to 4.1 percent of the labor force (see —). In 2019, the category made up 3.8 percent of the labor force. Incorporated self-employed are not reported by BLS prior to 2000, but can be calculated from the CPS, and make up a average of 2.8 percent of the labor force from 1989 to 1994.

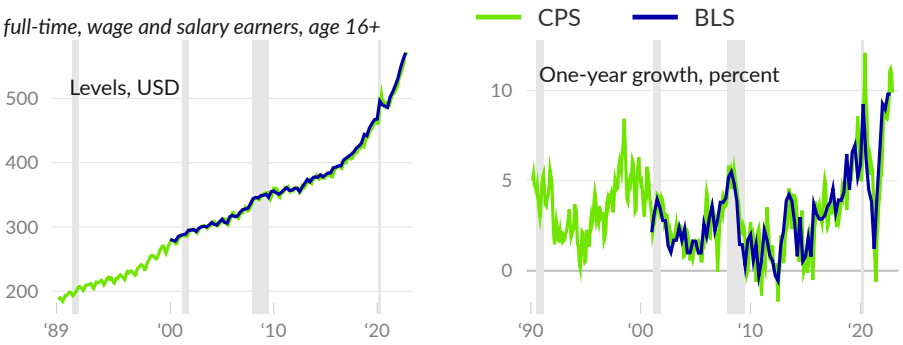
Wages

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 2022 Q4 show nominal first decile usual weekly earnings of $571, compared to $520 in 2021 Q4, resulting in one-year growth of 9.8 percent. In the previous quarter, 2022 Q3, first decile usual weekly earnings grew by 9.8 percent over the year. Author's calculations from the CPS (see —) show three-month moving average first decile usual weekly earnings of $568 in December 2022, $570 in November 2022, and $517 in December 2021. One-year growth was 9.9 percent for the three months ending December 2022, 10.9 percent for the three months ending November 2022, and 11.2 percent for the three months ending October 2022.

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

	2022 Q4	2022 Q3	2022 Q2	2022 Q1	2021 Q4	2020 Q4	2019 Q4	2018 Q4	2017 Q4
First decile	571	560	547	531	520	488	467	444	417
First quartile	736	724	710	701	697	654	623	601	580
Median	1085	1070	1041	1037	1010	984	936	900	857
Third quartile	1709	1696	1655	1635	1578	1539	1488	1437	1372
Ninth decile	2584	2583	2561	2512	2444	2321	2280	2213	2097

Source: Bureau of Labor Statistics

Weekly Earnings Growth

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

	2022 Q4	2022 Q3	2022 Q2	2022 Q1	2021 Q4	2020 Q4	2019 Q4	2018 Q4	2017 Q4
First decile	9.8	9.8	9.0	9.3	6.6	4.5	5.2	6.5	3.2
First quartile	5.6	6.0	6.8	6.7	6.6	5.0	3.7	3.6	3.9
Median	7.4	6.9	5.2	4.9	2.6	5.1	4.0	5.0	0.9
Third quartile	8.3	7.5	6.3	4.6	2.5	3.4	3.5	4.7	1.6
Ninth decile	5.7	7.1	6.5	3.6	5.3	1.8	3.0	5.5	1.5

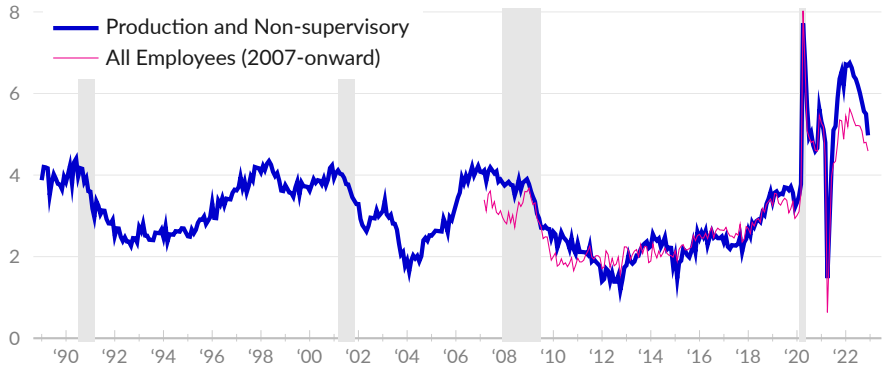
Source: Bureau of Labor Statistics

Nominal Hourly Wages

Over the year ending December 2022, **average hourly earnings** increased by 4.6 percent for all employees (see —) and increased by five 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, average earnings increased at an annual rate of 4.3 percent for all employees and increased at an annual rate of 4.7 percent for production and non-supervisory employees.

Average Hourly Earnings

nominal one-year growth, percent

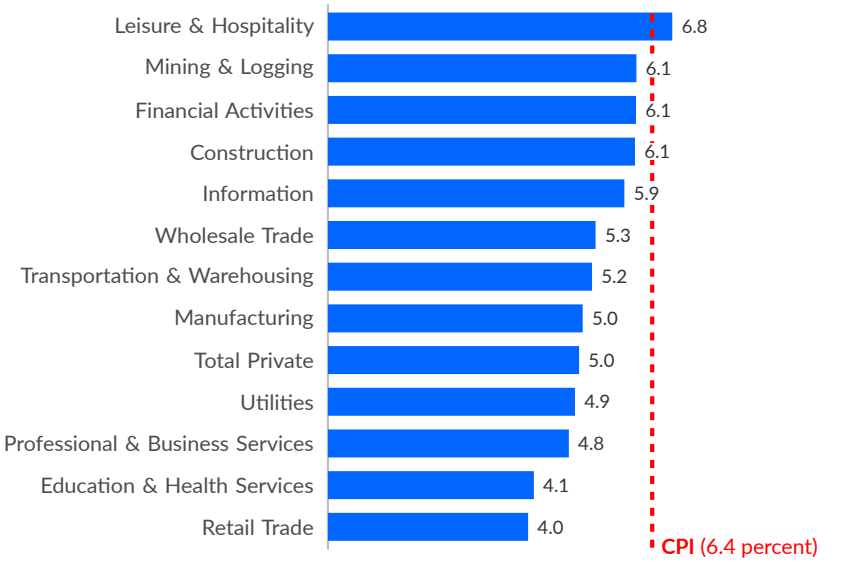


Source: Bureau of Labor Statistics

By industry, one of the 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 6.8 percent, followed by 6.1 percent in mining & logging and 6.1 percent in financial activities.

Average Hourly Earnings Growth by Industry

production and non-supervisory workers, as of December 2022
one-year growth, percent



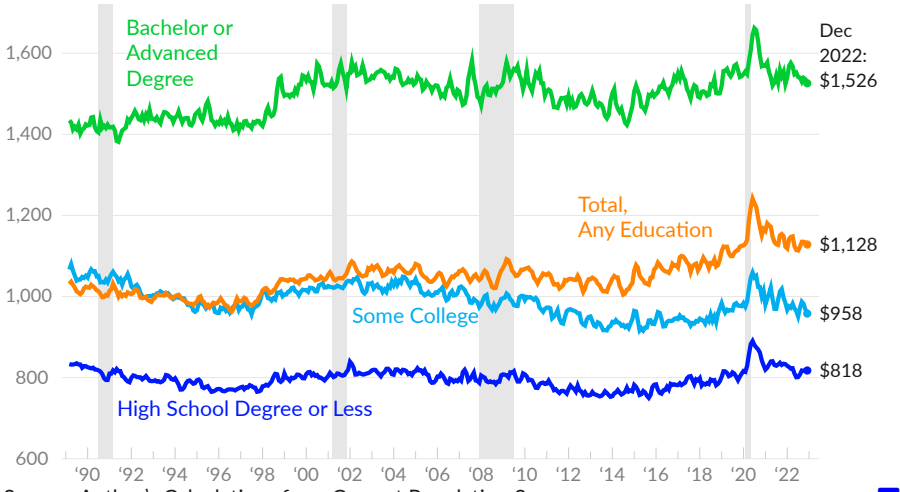
Source: Bureau of Labor Statistics

The US has increasingly invested in education, boosting productivity and earnings. To examine the return on investment, this section discusses the relationship between **wages and education**, over the long-term and in recent data.

Over the three months ending December 2022, the median usual earnings of full-time wage and salary workers age 25 to 54 averaged $1,128 per week. After adjusting for inflation, these earnings have increased by 9.4 percent, in total, since 1989. Digging deeper, the workforce is split into three groups by highest level of education attained. Real earnings increased 6.4 percent over the same period for workers with bachelor's degree or more, decreased 10.2 percent for workers with some college or an associate degree, and decreased 1.9 percent for those with a high school degree or less.

Real Earnings by Level of Education

median usual weekly earnings, full-time wage and salary workers age 25 to 54
December 2022 dollars, three-month moving average



Source: Author's Calculations from Current Population Survey

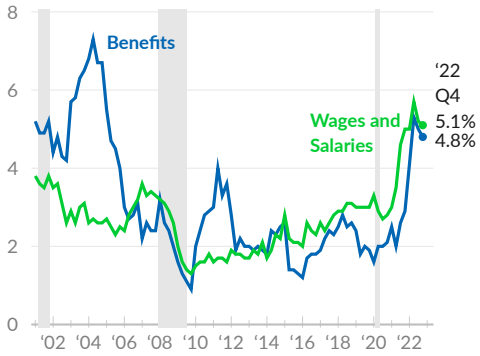
Employment Cost Index

The Bureau of Labor Statistics report the overall hourly labor costs faced by employers, using an index that is not influenced by short-term changes in the industry and occupation composition of the US workforce. Employer costs are reported separately for total compensation, wages and salaries, and benefits.

Benefits include health insurance, retirement, vacation, sick leave, and transportation benefits. Benefits access and participation vary, even within the same firm. The benefits costs in the index are averages computed across all workers, including the workers who do not have benefits.

Employment Cost Growth

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



Source: Bureau of Labor Statistics

In the fourth quarter of 2022, private industry wage and salary costs increased by 5.1 percent (one-year percent change, see —), following an increase of 5.2 percent in 2022 Q3, and an increase of 5.7 percent in 2022 Q2. In 2019, private wages and salaries costs increased by three percent, on average.

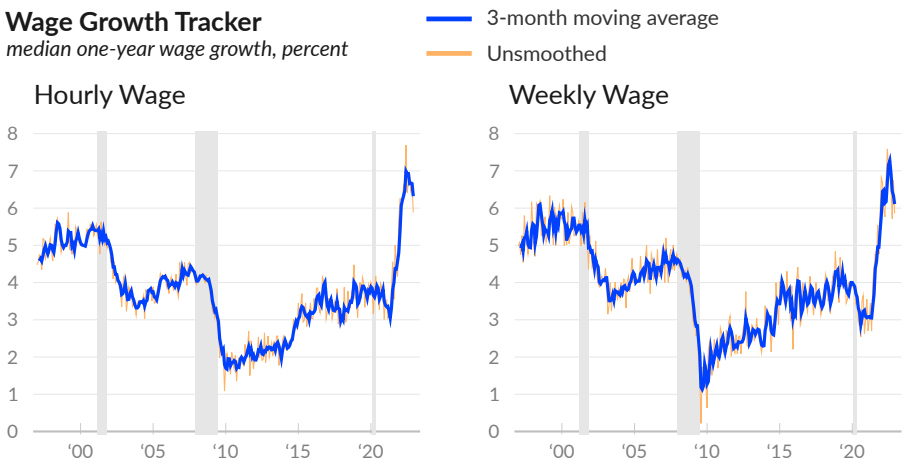
The cost of private sector benefits increased by 4.8 percent (see —) over the year ending 2022 Q4, following an increase of five percent in 2022 Q3. In 2019, private-sector benefits costs increased by two percent, on average.

Wage Growth Tracker

The Federal Reserve Bank of Atlanta publish a wage growth tracker that captures the distribution of one-year changes in the wages of the same people. 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 shows matched-observation hourly wage growth of 5.9 percent in December 2022 (see —), and average wage growth of 6.3 percent over the three months ending December 2022 (see —). One year prior, in December 2021, three-month moving average wage growth was 4.8 percent. Matched observation weekly wage growth, which is affected by changes in hours worked, increased 5.9 percent over the year ending December 2022 (see right chart).

Wage Growth Tracker
median one-year wage growth, percent



Source: Author's Calculations

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 2022, 11.1 percent of individuals had no hourly wage growth, compared to 11.6 in November 2022 (see —). One year prior, in December 2021, 12.9 percent of individuals had no wage growth.

Zero Wage Change
share of individuals with one-year wage growth between -0.5 and 0.5 percent

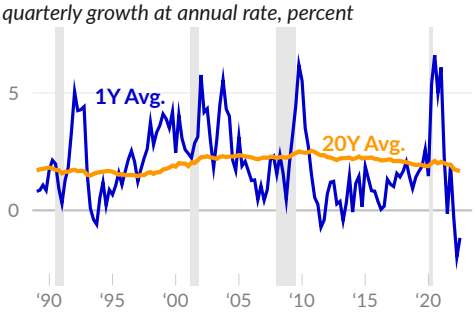
Source: Author's Calculations

Labor Productivity

Labor productivity is reported by the Bureau of Labor Statistics and measured as **real output per hour of work**. The measure captures the rate at which people, with all of the resources and equipment and infrastructure available to them, are able to work together to produce goods and services. Labor productivity growth 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.

Over the longer-term, US labor productivity growth has averaged 2.0 percent per year. The trailing 20-year average growth rate was 1.7 percent in 2022 Q3 (see —). During the 1990s and early 2000s, labor productivity growth was above its long-term average. In contrast, from 2010 to 2017, productivity growth was below average. Over the year ending 2022 Q3, productivity growth averaged -1.2 percent (see —).

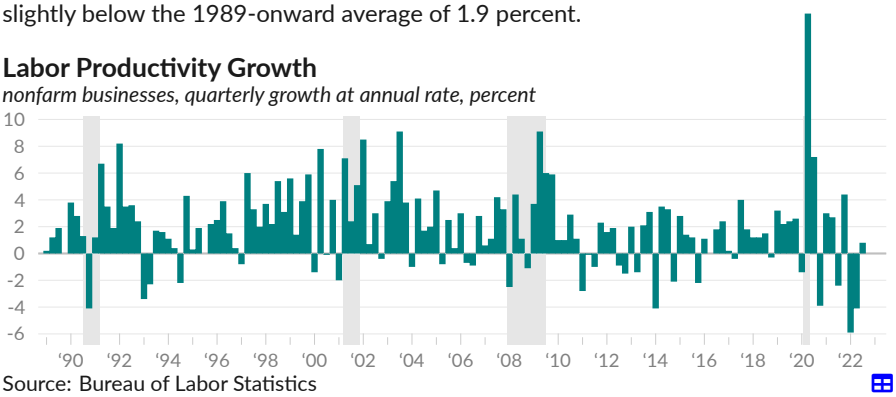
Labor Productivity Growth
quarterly growth at annual rate, percent



Source: Bureau of Labor Statistics

In 2022 Q3, labor productivity increased at an annual rate of 0.8 percent (see ■), as the result of an increase of 3.3 percent in real output and an increase of 2.5 percent in hours worked. In the prior quarter, 2022 Q2, labor productivity decreased at an annual rate of 4.1 percent, as real output decreased 1.2 percent and hours of work increased 2.9 percent. Over the past five years, labor productivity growth has averaged 1.7 percent, slightly below the 1989-onward average of 1.9 percent.

Labor Productivity Growth
nonfarm businesses, quarterly growth at annual rate, percent



Source: Bureau of Labor Statistics

In the short-term, productivity growth is 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.

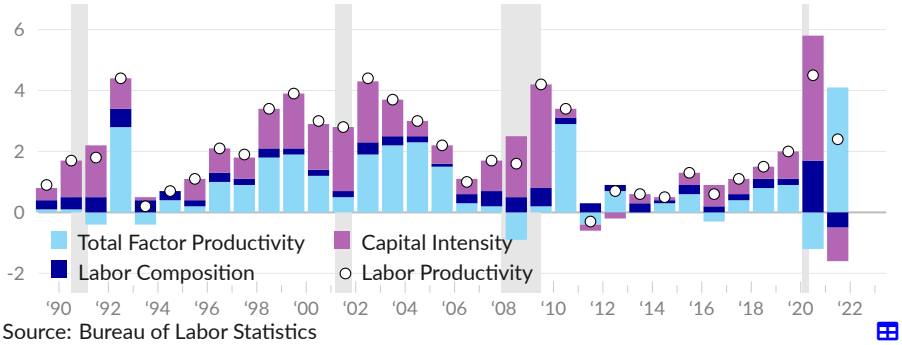
One theory of what drives long-term trends, sometimes called the *Kaldor-Verdoorn Law*, states that demand, and the capacity to meet that demand, determine productivity growth. An economy facing real resource constraints, where demand for goods and services exceeds the capacity to provide these services, 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.

The Bureau of Labor Statistics report **contributions to nonfarm business labor productivity growth**. Some portion of productivity growth can be explained by businesses adding capital such as equipment and IT improvements. Additionally, the age, education, and gender composition of the labor force changes over time, which affects the average output per hour of work.

In 2021, labor productivity increased by 2.4 percent (see ○). Capital intensity subtracted 1.1 percentage points (see ■), and labor composition subtracted 0.5 percentage point (see ■). The remainder, called total factor productivity, added 4.1 percentage points (see ■).

Decomposition of Labor Productivity Growth

contribution to labor productivity, percentage points



Source: Bureau of Labor Statistics

Union Membership

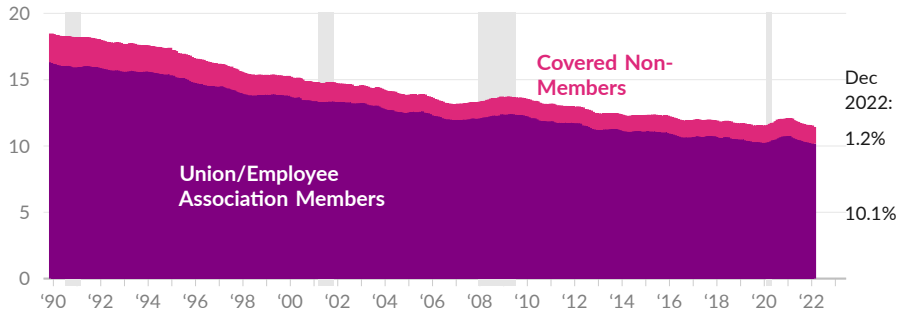
Membership in **unions and employee associations** has diminished in the United States over the past fifty years. Unionized jobs typically offer higher wages and better benefits and union membership tends to increase wages and benefits even in nonunion jobs. Many researchers argue that lower union membership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

Over the 12 months ending December 2022, the union membership rate averaged 10.1 percent (see ■). The coverage rate, which includes nonmembers that are covered under a union contract, was 11.3 percent. During the 12-month period, an average of 127.4 million workers were not represented by a union, 14.3 million workers were union members, and an additional 1.7 million workers, or 1.2 percent of the workforce, reported no union affiliation but were covered by a union contract (see ■).

One year prior, over the 12 months ending December 2021, the union membership rate was 10.3 percent, and the coverage rate was 11.6 percent. From December 2021 to December 2022, the 12-month average number of nonunion workers increased by five million, while the number of workers represented by unions increased by 200,000.

Union Membership and Coverage

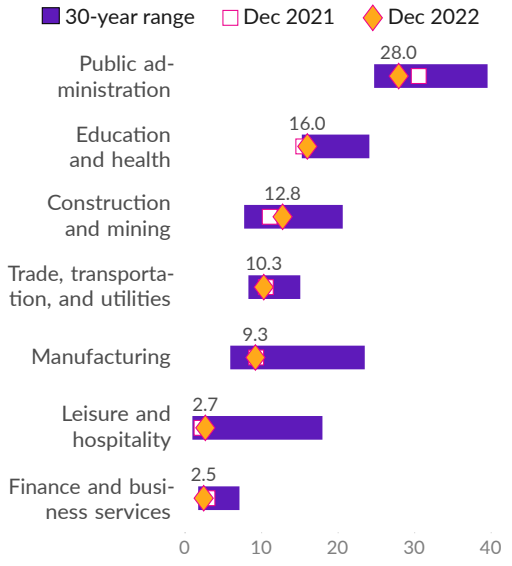
union or employee association share of jobs, percent, one-year moving average



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 28.0 percent as of December 2022, followed by education and health with 16.0 percent, and construction and mining with 12.8 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 15.3 percentage points below its January 1989 rate of 18.0 percent.

The lowest union membership rate is in finance and business services (2.5 percent). The union membership rate of the industry was 7.2 percent at its 30-year peak in March 1992.

Financial Markets

The US equity and capital markets provide funding for borrowers' activities and provide a source of income and capital gains to lenders. This section discusses equity markets, interest rates and bond markets, and money and monetary policy.

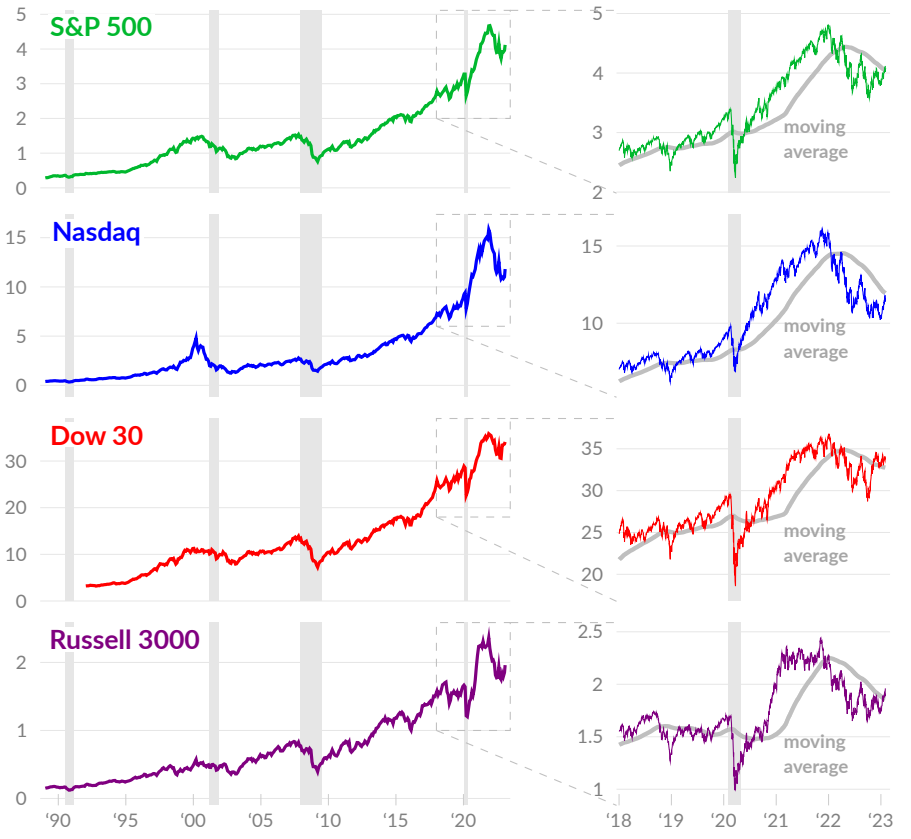
Equity Markets

Equity markets, or **stock markets**, provide a method for businesses to raise capital by selling shares, which represent ownership claims on the business. Equity markets also provide a place for people to buy and sell existing shares. Investors purchase shares in hopes that the price will go up, allowing them to sell the shares at a higher price and receive capital gains, or to gain access to a stream of dividends, which are payments from businesses to shareholders.

In the US, there are several stock market indices that track the share price of a basket of companies. These measures are weighted by the market capitalization of the companies in the basket, which is the share price multiplied by the number of shares. Market capitalization measures the market value of the company. Note that stock market indices do not provide information about dividends, and the dividend yield varies substantially between companies and between the baskets or groups of companies used in stock market indices.

Stock Market Indices

adjusted close, index value, in thousands



Source: Yahoo! Finance

The S&P 500 (see —) is a market-cap-weighted stock market index based on 500 large companies listed on US exchanges. As of February 1, 2023, the S&P 500 has increased 183.1 percent since 2000, and increased 52.8 percent since 2018.

The Nasdaq composite index (see —) includes nearly all companies listed on the Nasdaq stock exchange, and is heavily-weighted towards large tech companies. The Nasdaq index increased 186.0 percent since 2000, and increased 68.6 percent since 2018.

The Dow Jones (see —) industrial average is an index based on 30 large and prominent companies listed on US exchanges. The measure is used as a proxy for the performance of the largest companies, and increased 200.2 percent since 2000 and increased 37.3 percent since 2018.

Lastly, the Russell 3000 (see —) is a broad measure of the US stock market that seeks to be a benchmark of the performance of the overall market. Since 2000, the Russell 3000 has increased 295.0 percent. Since 2018, the measure increased 26.5 percent.

Stock Market Indices

adjusted close — *annual index returns, not including dividends*

	Feb 1, 2023	1-year moving average	2023 YTD	2022	2021	2020	2019	2018
— S&P 500	4,119	4,050	7.3	-19.4	26.9	16.3	28.9	-6.2
— Nasdaq	11,816	11,951	12.9	-33.1	21.4	43.6	35.2	-3.9
— Dow 30	34,093	32,759	2.9	-8.8	18.7	7.2	22.3	-5.6
— Russell 3000	1,961	1,865	11.3	-21.6	13.7	18.4	23.7	-12.2

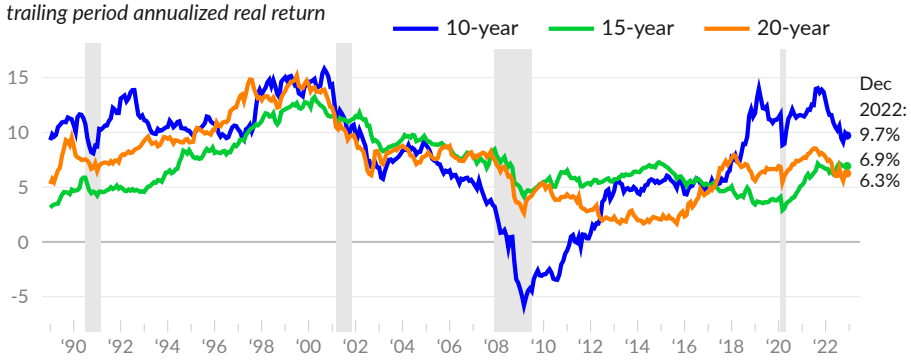
Source: Yahoo! Finance

Real Return

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 December 2022 (see —). Ultra-long-term real returns are currently low relative to the average trailing twenty-year real annual return of 10.1 percent during 1995–2005. The trailing ten-year real return was 9.7 percent, as of December 2022, and 10.7 percent during 1995–2005 (see —).

S&P 500 Real Return

trailing period annualized real return



Source: Shiller, Baker, Author's Calculations

One component of total returns is **dividend payments to shareholders**. The dividend payments per share over the previous four quarters divided by the share price is the dividend yield. The S&P 500 dividend yield has averaged around two percent, over the past few decades.

In December 2022, the dividend yield for the S&P 500 was 1.71 percent (see —), compared to 1.69 percent in November 2022, and 1.29 percent in December 2021. From 1990 to 2015, the dividend yield averaged 2.09 percent.

S&P 500 Dividend Yield

annual dividend per share divided by share price, percent

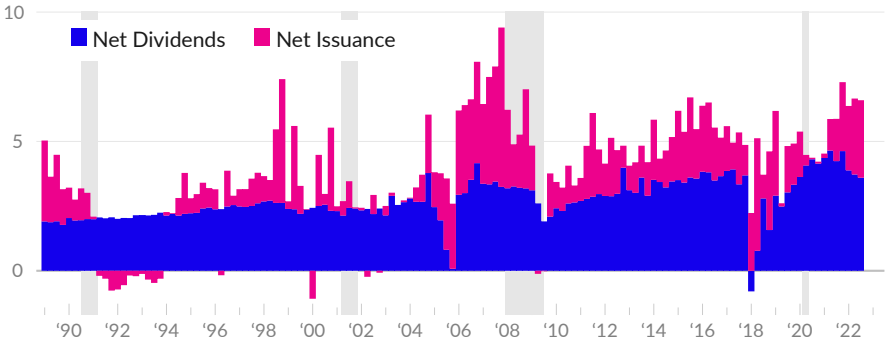
Source: Shiller

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.

In the third quarter of 2022, nonfinancial corporation net dividends are equivalent to 3.6 percent of GDP (see ■) and net equities issuance is equivalent to 3.0 percent of GDP (see ■). In 2019, net dividends were 2.9 percent of GDP and net issuance was 1.7 percent. From 1990 to 2015, net dividends averaged 2.6 percent of GDP and net issuance averaged 1.2 percent.

Corporate Equity Payout

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



Source: Federal Reserve, Bureau of Economic Analysis

Valuation

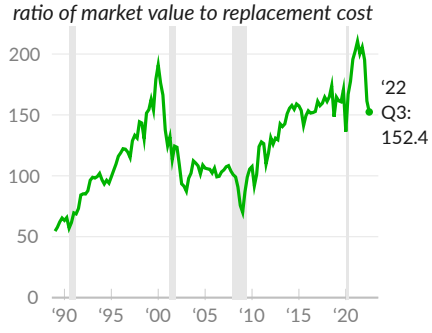
The cyclically-adjusted price to earnings (CAPE) ratio compares the current price of the S&P 500 to the previous ten-years of total S&P 500 returns, including dividends and buybacks (treated as dividends). Valuations often use recent or forecasted earnings. Robert Shiller's CAPE ratio covers ten years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

In January 2023, the Shiller total return CAPE ratio was 31.5, compared to 30.9 in December 2022 and 40.2 in January 2022 (see —). In 2019, the Shiller CAPE ratio was 32.1, on average. In 2000, during the stock market bubble, the ratio averaged 45.1.

Price to Earnings Ratio
ratio of market value to trailing 10-year returns

Source: Shiller

Tobin's Q
ratio of market value to replacement cost



Source: Federal Reserve

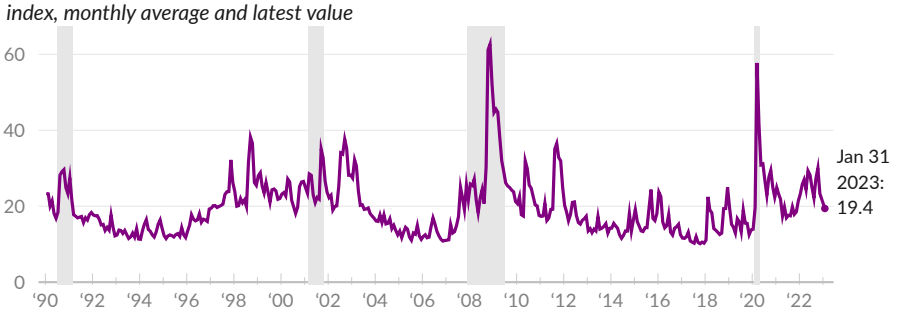
A second measure, Tobin's Q, is the ratio of market value to replacement value. A ratio below 100 means the market value is below the replacement value and stocks may be undervalued. A ratio above 100 means the market value is above the replacement cost and stocks may be overvalued. As of 2022 Q3, the ratio is 152.4 (see —), following 161.5 in 2022 Q2, and compared to an average of 164.4 in 2019.

Volatility

The Chicago Board Options Exchange uses S&P 500 options data to identify expectations of future volatility. When investors are uncertain about the future, they will pay a premium for the insurance-like qualities of options. The CBOE volatility index, popularly known as the VIX, captures overall changes in options prices to identify the market-implied volatility in the S&P 500 index over the following 30 days.

The latest value for the VIX is 19.4 on January 31, 2023 (see —), slightly below the average index value of 24.7 over the past three years, and in line with the typical index value of 17.9 since 1990. The VIX increased by 0.2 point over the past week.

CBOE Volatility Index
index, monthly average and latest value



Source: Chicago Board Options Exchange

Interest Rates

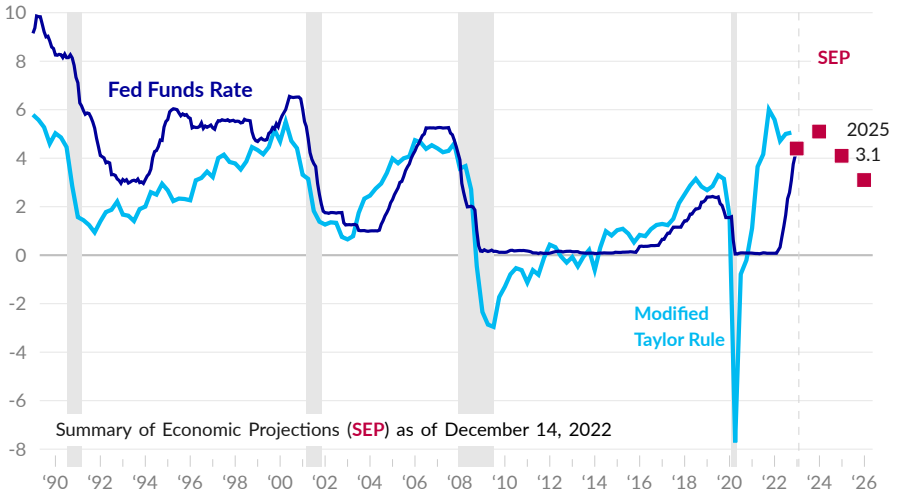
The US Federal Reserve System (Fed) has a congressional mandate to promote price stability and maximum employment. In practice, a Fed committee (the FOMC) determines the **federal funds rate**, which aims to influence interest rates in the broader economy. There are several channels through which interest 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. Through its influence on interest rates, the Fed's monetary policy can aim to be neutral or to stimulate or slow the economy.

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 at near zero, the Fed adopted several additional measures to increase liquidity in the global financial system.

In March 2022, the FOMC raised the base interest rate by 25 basis points. In May 2022, the FOMC raised the base interest rate by another 25 basis points. In June, July, September and November 2022, the FOMC raised rates by 75 basis points, in each meeting. The effective fed funds rate is 4.33 percent, as of January 31, 2023 (see —).

Effective Federal Funds Rate

percent, monthly average except for latest value



Source: Federal Reserve, Author's Calculations

Economist John Taylor described a rule for setting the federal funds rate based on inflation and output. Versions of this *Taylor rule* track the actual federal 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 —). As of the fourth quarter of 2022, the modified Taylor rule suggests a federal funds rate of 5.1 percent, 0.73 percentage point above the current rate.

FOMC meeting participants provide projections which can be used to summarize policymaker views on the future path of the federal funds rate, as seen by the people who set it. As of December 14, 2022, the median projected federal funds rate rate is 4.4 percent for 2022, 5.1 percent for 2023, and 4.1 percent for 2024 (see ■).

Real Interest Rates

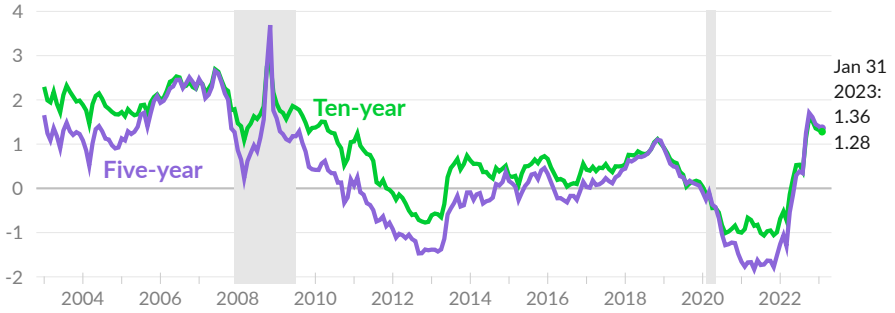
Lenders charger higher interest rates to compensate for expected inflation. Real interest rates, which are adjusted for expected inflation, can offer insight into economic and financial conditions. Low real interest rates encourage borrowing and consumption and increased economic activity while high real interest rates discourage borrowing and encourage saving.

One measure of real interest rates is treasury inflation-indexed securities. The yield on these securities can be a proxy for the interest rate investors would charge for treasuries, without inflation.

On January 31, 2023, the real yield on ten-year treasuries was 1.28 percent (see —), compared to 1.59 percent three months prior, on October 25, 2022. Five-year treasuries yield 1.36 percent in the latest data, and 1.63 percent three months prior, after adjusting for expected inflation (see —).

Real Treasury Yields

derived from inflation-indexed treasuries, percent



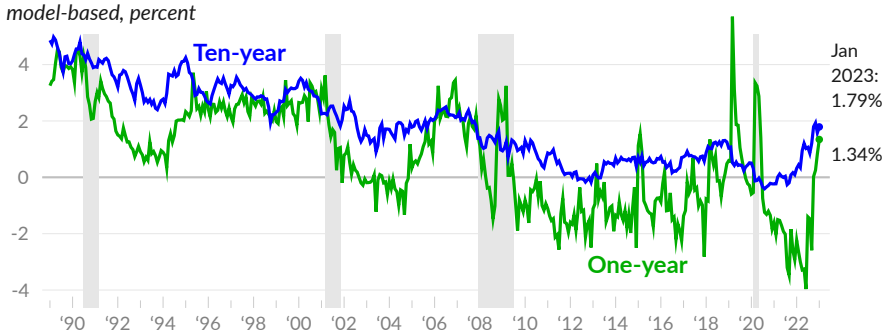
Source: Federal Reserve

The previous approach has limitations, as the market for treasury inflation-indexed securities is relatively small and can be influenced by monetary policy. The Cleveland Fed model estimates real yields across the term structure, using a model based on treasury yields, inflation, and financial-market- and survey-based information, and avoids some limitations of the previous approach.

The model-based real yield on ten-year treasuries is 1.79 percent, as of January 2023 (see —). Ten-year treasury real yields averaged 3.30 percent during the 1990s. The model-based real yield for one-year treasuries is 1.34 percent in January 2023, compared to an average of 2.21 percent during the 1990s (see —).

Real Treasury Yields

model-based, percent



Source: Federal Reserve of Bank of Cleveland

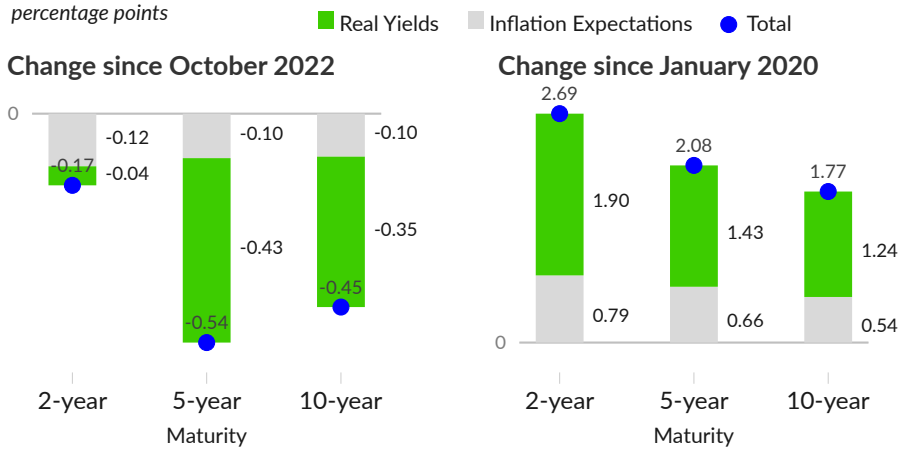
Changes in nominal treasury yields can be **decomposed into changes in expected inflation and changes in real yields**. Changes in real yields reflect changes in expected path of the federal funds rate and the economic outlook. Federal Reserve Bank of Cleveland models identify inflation expectations across the term structure, which can be used to identify changes in real yields.

Over the three months ending January 2023, nominal two-year treasury yields decreased 0.17 percentage point, real yields decreased 0.04 percentage point, and inflation expectations decreased 0.12 percentage point. Ten-year treasury nominal yields decreased 0.45 percentage point, real yields decreased 0.35 percentage point, and inflation expectations decreased 0.10 percentage point.

Over the three years ending January 2023, the nominal yield on two-year treasuries increased 2.69 percentage points, the real yield increased 1.90 percentage points, and inflation expectations increased 0.79 percentage point. For ten-year treasuries, the nominal yield increased 1.77 percentage points, the real yield decreased 0.35 percentage point, and expected inflation increased 0.54 percentage point.

Decomposition of Recent Changes in Treasury Yields

percentage points



Latest data from model as of: January 2023
Source: Federal Reserve, Federal Reserve of Bank of Cleveland

Government Bonds

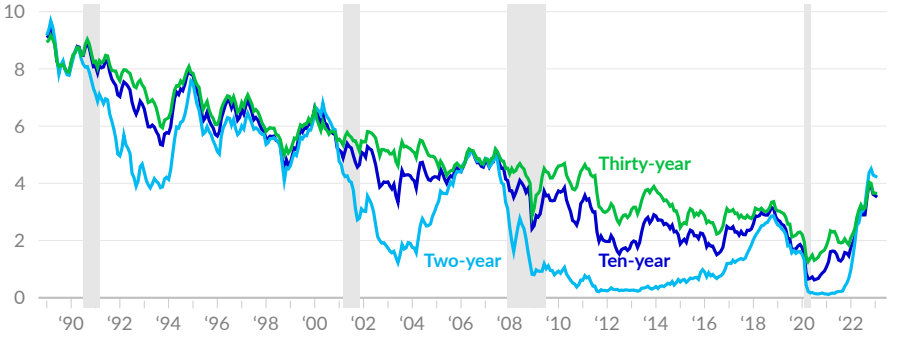
United States Treasury securities, or **treasuries**, are the asset created by federal government borrowing. The treasuries market is traditionally considered both very low-risk and highly liquid. The yield on these securities has fallen over time, from an average ten-year treasury bond annual yield of 8.5 percent in 1989 to an average of 0.62 percent in July 2020. As of January 31, 2023, the constant maturity yield for ten-year treasury bonds is 3.52 percent (see —), compared to 1.81 percent one year prior.

Longer-term treasuries follow the same trend. In January 31, 2023, 30-year treasuries yield 3.65 percent (see —), compared to 8.45 percent in 1989. Over the past year, 30-year treasury yields increased 1.5 percentage points.

Shorter-duration treasury yield have also fallen since 1989, though shorter-duration treasuries are more acutely affected by changes in the key interest rate set by the Federal Reserve. Over the past year, two-year treasury yields have increased by 3.1 percentage points, as the Federal Reserve is expected to lower interest rates. As of January 31, 2023, the annual yield on two-year treasuries is 4.21 percent (see —).

Treasury Constant Maturity Yields

percent, monthly average shown except for latest value



Source: Federal Reserve

Selected US Treasury Rates

constant maturity yield, percent *averages*

	Jan 31, 2023	Jan 30, 2023	Jan 25, 2023	Dec 2022	Jan 2022	2019	2010 –'13	1998 –'00	1989
One-month	4.58	4.60	4.67	3.90	0.05	2.12	0.07	–	–
Three-month	4.70	4.72	4.72	4.36	0.15	2.11	0.08	5.23	8.39
Six-month	4.80	4.82	4.79	4.71	0.33	2.11	0.13	5.38	8.48
One-year	4.68	4.71	4.67	4.68	0.55	2.05	0.20	5.42	8.53
Two-year	4.21	4.25	4.11	4.29	0.98	1.97	0.43	5.61	8.57
Three-year	3.90	3.96	3.84	4.05	1.25	1.94	0.70	5.62	8.55
Five-year	3.63	3.68	3.54	3.76	1.54	1.95	1.35	5.62	8.50
Seven-year	3.59	3.62	3.51	3.72	1.70	2.05	1.93	5.76	8.52
Ten-year	3.52	3.55	3.46	3.62	1.76	2.14	2.54	5.65	8.49
Twenty-year	3.78	3.79	3.74	3.87	2.15	2.40	3.33	6.05	–
Thirty-year	3.65	3.66	3.62	3.66	2.10	2.58	3.63	5.80	8.45

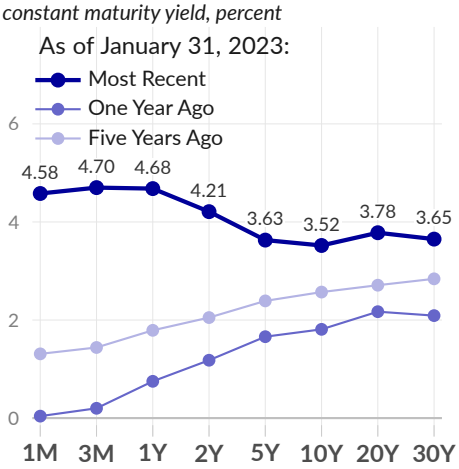
Source: Federal Reserve

The **Treasury yield curve** shows the interest rates on different maturities of US Treasury bonds and bills, at a given point in time. The yield curve summarizes the term structure of interest rates, how much it costs to borrow for different periods of time, and has traditionally been considered an indicator of how markets view short-term economic conditions relative to longer-term conditions.

The yield curve is normally upward sloping as investors expect to be compensated for lending for a longer period of time. The shape of the yield curve changes over time and is affected by several factors, including the term premium, the monetary policy of the Federal Reserve, and expectations about future inflation. The curve can become steeper, for example, if interest rates or inflation is expected to be higher in the future.

Treasury Yield Curve

constant maturity yield, percent



Source: Federal Reserve

The yield curve can also become *inverted* when yields on shorter-term debt are higher than yields on longer-term debt. An inverted yield curve can be a sign of worsening economic conditions. For example, short term rates may exceed longer-term rates if the Federal Reserve is expected to lower interest rates in the future, or if inflation is expected to fall due to weakened economic conditions.

Since 1989, the US has entered into four recessions and the 10-year to 2-year segment of the yield curve has newly inverted six times. The most recent such inversion started on April 1, 2022.

Another measure of the term structure of interest rates is the *spread* between treasuries with different maturities. **Treasury yield spreads** can be used to track changes in the term structure over time.

As of January 31, 2023, the spread between a 10-year treasury bond and a three-month treasury bill is -1.18 percentage point (see —), compared to 1.61 percentage points one year prior. The spread between 10-year and 2-year treasuries (see —) is -0.69 percentage point on January 31, 2023, and 0.63 percentage point one year prior.

Treasury Yield Spreads

percentage points

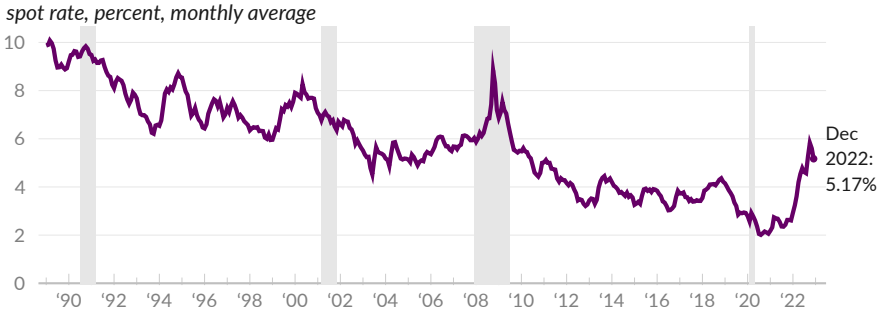
Source: Federal Reserve

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 5.17 percent in December 2022, following 5.60 percent in November 2022 (see —). One year prior, in December 2021, this spot rate was 2.61 percent, and three years prior, in December 2019, it was 2.92 percent.

High Quality Corporate Bonds, 10-Year

spot rate, percent, monthly average



Source: Treasury

Corporate bonds rated below investment grade (a rating below BBB) are tracked by the ICE BofA high yield index. As of January 31, 2023, the effective yield for **high-yield corporate bonds** in the index is 8.0 percent (see —). In November 2022, the average effective yield was 8.8 percent. Prior to the COVID-19 pandemic, in 2019, the average effective yield was 6.1 percent.

ICE BofA High Yield Index Effective Yield

percent

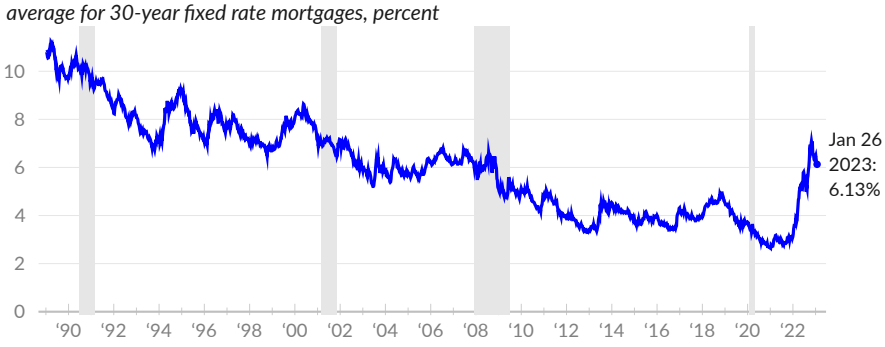
Source: Ice Data Indices

Mortgage Rates

The **mortgage rate** available to homebuyers can affect housing markets, which in turn can affect demand for construction materials and for consumer goods. As of January 26, 2023, the average 30-year mortgage rate is 6.13 percent, compared to 6.95 percent on November 3, 2022, and 3.55 percent on January 27, 2022 (see —). In 2019, the average rate was 3.94 percent.

Mortgage Rate

average for 30-year fixed rate mortgages, percent



Source: Freddie Mac

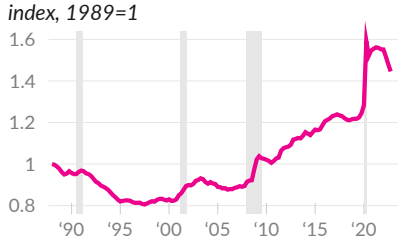
Money and Monetary Policy

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.

In December 2022, the M2 money stock totals $21.4 trillion. Put into the context of overall economic activity, M2 is equivalent to 81.7 percent of GDP in the fourth quarter of 2022. During the 1990s, the ratio of money to economic activity was falling (see —). Following the great recession, the money supply has expanded relative to activity. Since 1989, the ratio has increased by a total of 44.6 percent.

M2 to GDP ratio

index, 1989=1



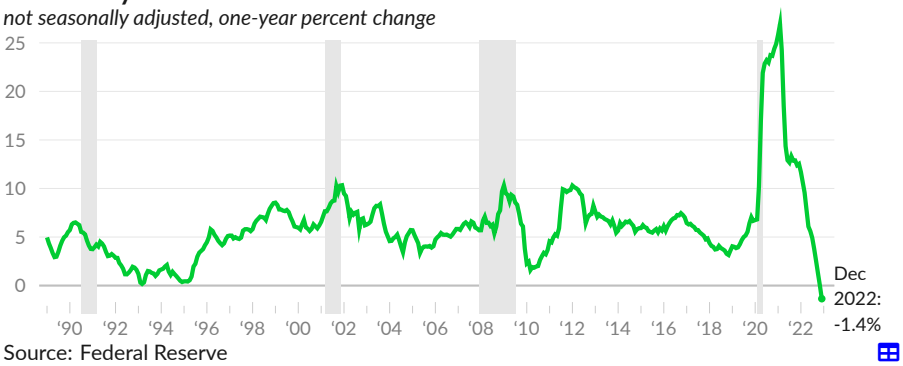
Source: Federal Reserve

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 0.2 percent in December 2022, over the previous month, following a decrease of 0.1 percent in November 2022. Over the past 12 months, the money stock decreased 1.4 percent (see —). The M2 money stock has increased 38.6 percent, in total, over the past three years.

M2 Money Stock Growth

not seasonally adjusted, 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 US 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, trillions of US dollars

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 $8.5 trillion, as of the latest data, covering January 25, 2023. The Fed currently holds $5.4 trillion in Treasuries and $2.6 trillion in mortgage-backed securities.

Federal Reserve Assets

billions of US dollars

	Jan 25, 2023	Jan 18, 2023	Dec 28, 2022	Jan 26, 2022	Jan 27, 2021
Total (see —)	8,470.6	8,489.0	8,551.2	8,860.5	7,404.9
US Treasury securities	5,435.6	5,436.7	5,500.8	5,716.2	4,766.1
Mortgage-backed securities	2,624.7	2,639.9	2,641.4	2,660.8	2,069.8
Central bank liquidity swaps	0.4	0.2	0.4	0.3	9.6
Repurchase agreements	0.0	0.0	0.0	0.0	1.0
Loans	16.3	15.9	16.1	30.6	51.1
Payroll Protection Program	11.2	11.3	11.5	30.2	46.7
Net unamortized premium	283.8	284.8	286.9	332.6	338.8
Other	98.5	100.2	94.0	89.7	121.8

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

one-year growth, percent

	Dec '22	Nov '22	Oct '22	Sep '22	Dec '21	Dec '20	'17–19 Avg.	'00–Avg.
CPI, All Items	6.5	7.1	7.7	8.2	7.0	1.4	2.1	2.5
CPI, ex. Food & Energy	5.7	6.0	6.3	6.6	5.5	1.6	2.1	2.2
PPI, Final Demand	6.2	7.3	8.2	8.5	10.0	0.8	2.3	2.7
Imports Price Index	3.5	2.7	4.2	6.1	10.3	-0.3	1.6	2.1
Exports Price Index	5.0	6.1	7.3	9.8	14.9	0.4	1.6	2.2
PCE, All Items	5.0	5.5	6.1	6.3	6.0	1.3	1.8	2.1
PCE, ex. Food & Energy	4.4	4.7	5.1	5.2	5.0	1.5	1.8	1.9
PCE, Trimmed Mean	4.4	4.6	4.7	4.7	3.3	1.8	1.9	2.1

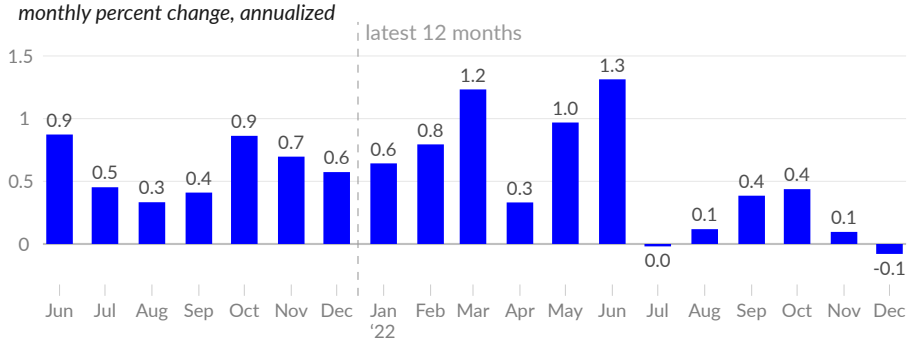
Source: BLS, BEA, Federal Reserve Bank of Dallas

In effect, the 12-month percent change in prices is smoothed, relative to the one-month change, by including information on price changes that happened over the past year. 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 2022, the one-month change in the consumer price index (CPI) was -0.1 percent (see ■), following 0.1 percent in November 2022.

CPI One-Month Change

monthly percent change, annualized



Source: Bureau of Labor Statistics

Consumer Price Index

Consumer prices increased 6.5 percent over the year ending December 2022 (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 5.7 percent over the same one-year period (see —).

Consumer Price Index

one-year growth, percent, not seasonally adjusted

Source: Bureau of Labor Statistics

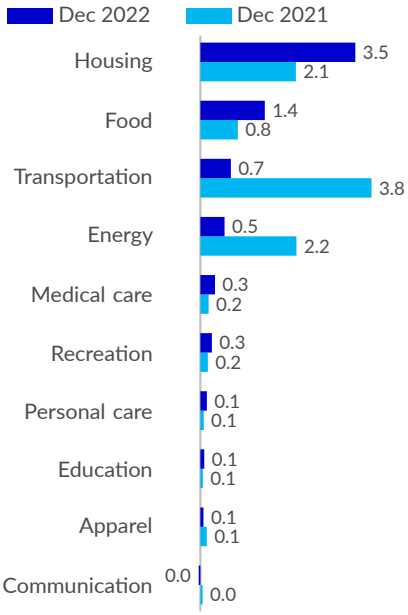
Recent changes in prices can be broad-based, that is derived from many prices changing at roughly the same rate, or narrow-based and driven by large changes in a subset of prices. Identifying each major spending category's **contribution to overall inflation** gives insight into whether inflation is broad-based and also into which groups of people face higher or lower rates of inflation.

In December 2022, housing prices contributed 3.5 percentage points to the CPI one-year inflation rate of 6.5 percent, far above the category's December 2021 contribution of 2.1 percentage points. Food prices added 1.4 percentage points to December 2022 inflation, substantially above the year-prior contribution of 0.8 percentage point. Transportation prices increased the inflation rate by 0.7 percentage point in the latest data, compared to 3.8 percentage points in December 2021.

Energy prices increased the inflation rate by 0.5 percentage point in December 2022, far below the year-prior contribution of 2.2 percentage points. Medical care prices make up 8.5 percent of the CPI basket and contributed 0.3 percentage point to overall inflation in the latest data, slightly above a contribution of 0.2 percentage point one year prior.

Contribution of Major Categories

contribution to one-year CPI inflation rate
percentage points, not seasonally adjusted



Source: Bureau of Labor Statistics

The prices of some items are more volatile than others. Food and energy prices, for example, are sometimes separated from the rest of the CPI basket, which is referred to as the *core*, because swings in food and energy prices are larger and more frequent.

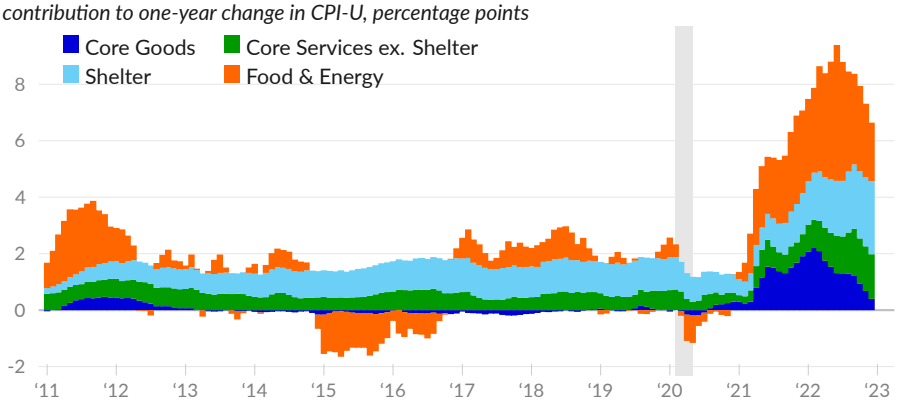
Core inflation includes core goods, core services other than shelter, and shelter. Core goods inflation was barely existent from 2013 through the start of the pandemic. Core goods prices are disproportionately affected by import prices and by changes in the quality of goods, for example from technological improvement. In contrast, domestic wage growth affects the prices for core services more than the other categories. Shelter prices are affected by housing supply and construction.

In December 2022, core goods contributed 0.4 percentage point to the one-year non-seasonally-adjusted CPI inflation rate of 6.5 percent (see ■), while core services excluding shelter contributed 1.6 percentage points (see ■). Shelter added 2.6 percentage points (see ■), and food & energy added 2.1 percentage points (see ■).

One year prior, in December 2021, the corresponding CPI inflation rate was 7.0 percent; core goods contributed 1.9 percentage points, core services excluding shelter contributed 0.8 percentage point, shelter contributed 1.5 percentage points, and food and energy added 2.9 percentage points.

CPI Decomposition

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



Source: Bureau of Labor Statistics, Author's Calculations

Relative Prices

Some prices increase faster or slower than others. Additionally, the basket of goods used to calculate the CPI is based on average spending patterns across individuals. At a given point, individuals may dedicate a large share of spending to a certain categories or have no expenses at all in a category. For example, day care costs are paid generally only for a few years of a child's life and only some households contain day-care-age children. But within those households, day care is a large share of overall spending.

One-year inflation rates for different categories of goods and services, including some smaller categories, are captured in the following section and table. The table also shows cumulative price changes since February 2020, the last month of data before the COVID-19 pandemic shutdown in the US. Additionally, the weight that a category has in the overall index–the category's share of the basket of goods and services used to calculate the CPI–is included as the last column in the table. This weight comes from each category's share of overall consumer spending during the most recent reference period, and is updated by changes in prices since the reference period.

Housing prices increased 8.1 percent over the year ending December 2022, far above the pre-COVID rate of 2.9 percent (the average monthly rate during 2019). Medical care prices increased four percent, these prices grew at an average rate of 2.8 percent during 2019. In contrast, prices of food consumed at home (groceries) increased 11.8 percent in the year ending December 2022 compared to 0.9 percent during 2019.

Transportation prices increased 3.9 percent over the year ending December 2022, far above the pre-COVID 0.3 percent decrease. Energy prices increased 7.3 percent over the year, compared to an average 2.1 percent decrease on average in 2019. Energy prices are historically more volatile than other categories.

Selected CPI Categories

one-year growth, percent

	Dec '22	Nov '22	Oct '22	Dec '21	2019	Since Feb '20	Weight, Dec '22
All items	6.5	7.1	7.7	7.0	1.8	14.7	100.0
All items less food and energy	5.7	6.0	6.3	5.5	2.2	12.3	78.726
Housing	8.1	7.8	7.9	5.1	2.9	15.0	43.008
Owners' equivalent rent	7.5	7.1	6.9	3.8	3.3	13.5	24.496
Rent of primary residence	8.3	7.9	7.5	3.3	3.7	13.9	7.530
Lodging away from home	3.2	3.2	5.9	23.9	3.0	5.0	0.886
Household furnishings & ops.	6.7	7.6	8.4	7.4	1.8	17.1	4.792
Household energy	16.2	15.7	17.1	11.6	-0.4	31.5	3.848
Transportation	3.9	7.8	11.2	21.1	-0.3	23.2	17.737
New vehicles	5.9	7.2	8.4	11.8	0.4	19.4	4.083
Used cars and trucks	-8.8	-3.3	2.0	37.3	1.0	37.4	3.548
Gasoline (all types)	-1.5	10.1	17.5	49.6	-3.5	30.9	3.467
Public transportation	18.9	23.8	28.1	2.4	0.3	3.9	0.868
Medical care	4.0	4.2	5.0	2.2	2.8	7.2	8.288
Professional services	3.0	3.1	3.3	3.3	1.1	8.0	3.467
Hospital and related services	4.6	3.2	3.4	3.3	2.1	9.6	2.527
Health insurance	7.9	13.5	20.6	-1.2	14.5	8.3	0.815
Food	10.4	10.6	10.9	6.3	1.9	21.0	13.867
Food at home	11.8	12.0	12.4	6.5	0.9	22.6	8.574
Food away from home	8.3	8.5	8.6	6.0	3.1	18.6	5.293
Full-service	8.2	9.0	9.0	6.6	3.2	18.1	2.448
Limited-service	6.6	6.7	7.1	8.0	3.1	21.3	2.554
Recreation	5.1	4.7	4.1	3.3	1.3	9.1	5.044
Communication	-1.1	-1.1	-2.2	1.3	-0.9	2.2	3.463
Wireless telephone services	1.3	1.0	-1.4	-0.3	-2.5	5.3	1.510
Internet services	1.1	1.4	0.5	2.6	1.5	3.5	0.918
Education	3.3	3.1	3.0	2.0	2.7	6.6	2.599
College tuition and fees	2.3	2.0	2.0	1.8	2.9	4.8	1.434
Day care and preschool	5.4	5.3	4.9	2.7	2.8	9.7	0.634
Apparel	2.9	3.6	4.1	5.8	-1.3	0.1	2.376
Personal care	6.6	7.2	6.4	3.4	1.3	10.9	2.213

Source: Bureau of Labor Statistics

The following table provides the one-month percent change in prices for the same CPI categories seen above.

Selected CPI Categories, Monthly Rate
one-month growth, seasonally adjusted, percent

	Dec '22	Nov '22	Oct '22	Sep '22	Aug '22	Jul '22	Jan '22	Dec '21
All items	-0.1	0.1	0.4	0.4	0.1	-0.0	0.6	0.6
All items less food and energy	0.3	0.2	0.3	0.6	0.6	0.3	0.6	0.6
Housing	0.7	0.4	0.5	0.7	0.8	0.4	0.7	0.5
Owners' equivalent rent	0.8	0.7	0.6	0.8	0.7	0.6	0.4	0.4
Rent of primary residence	0.8	0.8	0.7	0.8	0.7	0.7	0.5	0.4
Lodging away from home	1.5	-0.7	4.7	-1.0	0.1	-2.8	-4.0	1.6
Household furnishings & ops.	0.3	0.0	-0.0	0.5	1.0	0.6	1.3	1.1
Household energy	0.6	-1.0	-0.5	0.9	1.8	-0.4	2.9	0.2
Transportation	-2.6	-1.1	0.7	-0.6	-2.3	-2.1	0.4	1.4
New vehicles	-0.1	0.0	0.4	0.7	0.8	0.6	0.0	1.2
Used cars and trucks	-2.6	-3.0	-2.4	-1.1	-0.1	-0.4	1.5	3.3
Gasoline (all types)	-9.9	-2.0	3.9	-5.0	-11.2	-8.0	-0.8	1.3
Public transportation	-2.9	-2.0	0.5	0.1	-3.2	-6.3	1.6	1.1
Medical care	0.1	-0.5	-0.5	0.8	0.7	0.4	0.7	0.3
Professional services	0.1	0.1	0.2	0.7	0.6	-0.0	0.2	0.2
Hospital and related services	1.5	-0.3	-0.2	0.2	0.6	0.5	0.5	0.1
Health insurance*	-3.5	-4.3	-4.1	2.1	2.4	2.2	2.7	1.6
Food	0.3	0.5	0.6	0.8	0.8	1.1	0.9	0.5
Food at home	0.2	0.5	0.4	0.7	0.7	1.3	1.0	0.4
Food away from home	0.4	0.5	0.9	0.9	0.9	0.7	0.7	0.6
Full-service	0.1	0.4	1.0	0.4	0.8	0.6	0.7	0.8
Limited-service*	0.5	0.6	0.7	0.6	0.7	0.8	0.7	0.6
Recreation	0.2	0.5	0.7	0.1	0.2	0.3	0.9	-0.1
Communication	0.0	1.0	-0.1	-0.1	-0.2	-0.4	0.0	0.0
Wireless telephone services*	0.2	2.3	-0.3	-0.1	-0.0	-0.0	-0.1	-0.1
Internet services	0.1	0.9	0.5	-0.1	-0.1	-0.8	0.1	0.4
Education	0.3	0.3	0.1	0.4	0.5	0.1	0.2	0.1
College tuition and fees	0.3	0.2	0.1	-0.3	0.5	0.2	0.2	0.1
Day care and preschool	0.3	0.6	0.2	2.0	0.6	-0.2	0.1	0.2
Apparel	0.5	0.2	-0.7	-0.3	0.2	-0.1	1.1	1.1
Personal care	-0.1	0.7	0.5	0.4	0.6	0.4	1.0	0.5

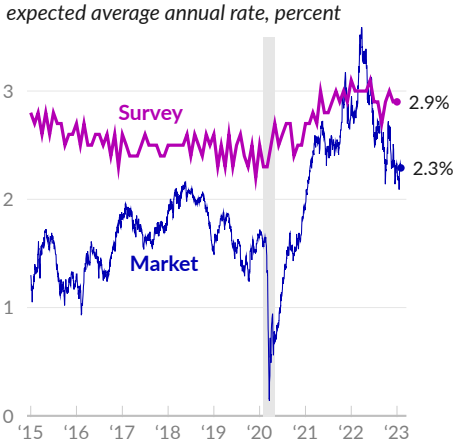
Source: Bureau of Labor Statistics; *not seasonally adjusted

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.

Five-Year Expected Average Inflation

expected average annual rate, percent



Source: FRED, U. of Michigan

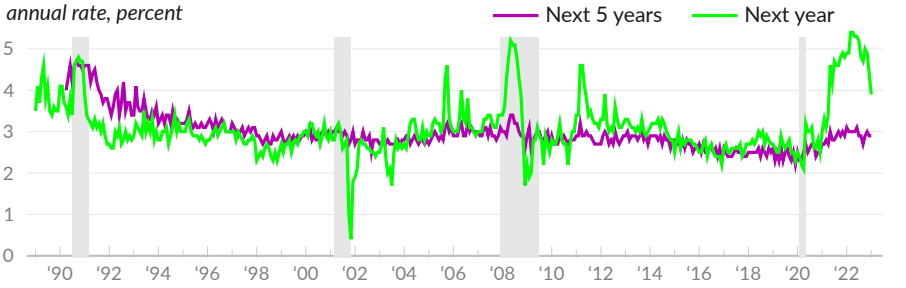
As of January 2023, surveyed consumers expect inflation to average 2.9 percent over the next five years (see —), compared to an expected rate of 3.1 percent in January 2022. Consumers had expected inflation to average 2.5 percent over the past five years, while actual inflation over the period was 3.6 percent.

As of February 1, 2023, markets expect an average inflation rate of 2.3 percent over the next five years (see —), compared to an expected rate of 2.8 percent on January 28, 2022. Markets had expected inflation to average 2.0 percent per year over the past five years, five years ago.

Both survey- and market-based estimates of expected inflation distinguish 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 3.9 percent over the year starting January 2023 (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 2.2 percent inflation per year. Inflation rates in the near-term are therefore expected to fall below inflation rates in the longer-term.

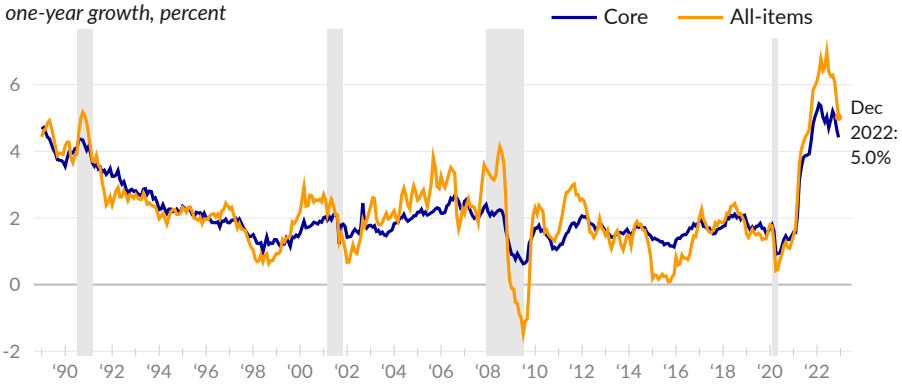
PCE Price Index

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 2022, **PCE inflation**, measured as the one-year percent change in the overall index, is 5.0 percent (see —), compared to 5.5 percent in November 2022, and 6.0 percent in December 2021. Core PCE inflation, which excludes food and energy, was 4.4 percent in December 2022 (see —), 4.7 percent in November 2022, and 5.0 percent in December 2021.

Personal Consumption Expenditure Price Index

one-year growth, percent



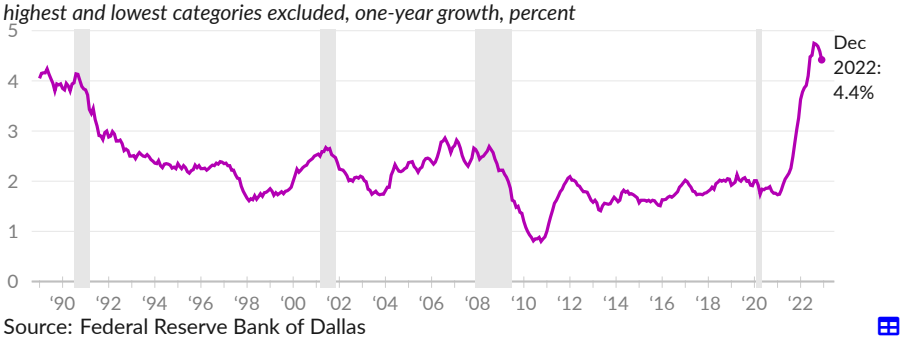
Source: Bureau of Economic Analysis

The Federal Reserve Bank of Dallas publish a variation of the PCE price index called the trimmed-mean index. The most volatile categories in the current month's index are removed, or *trimmed*, to smooth the data. As a result, the most extreme categories, which vary from month-to-month, do not affect inflation rates calculated using the trimmed-mean index.

The trimmed-mean PCE price index increased 4.4 percent over the year ending December 2022 (see —). By excluding top and bottom categories, the trimmed-mean rate was 0.6 percentage point below the all-items PCE rate. In November 2022, the **trimmed-mean inflation rate** was 4.6 percent, 0.9 percentage point below the all-items rate. From 2017–2019, the average trimmed-mean rate was 1.9 percent, 0.1 percentage point above the all-items rate.

Personal Consumption Expenditure Price Index, Trimmed Mean

highest and lowest categories excluded, one-year growth, percent



Source: Federal Reserve Bank of Dallas

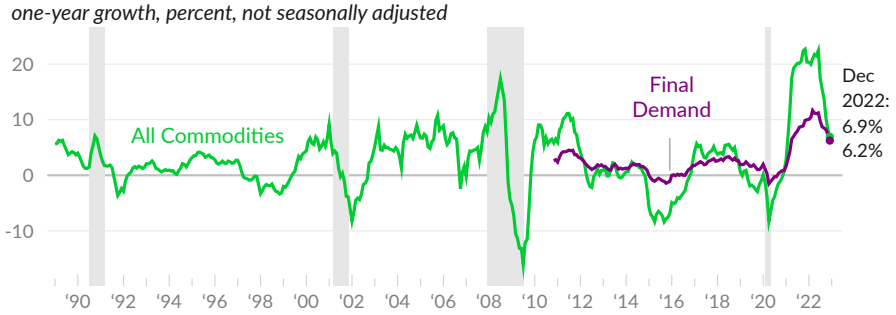
Producer Prices

The Bureau of Labor Statistics report **prices producers receive**. The goods-only producer price index (PPI) for all commodities (see —) increased 6.9 percent over the year ending December 2022, far below the 12-month growth rate of 20.4 percent in December 2021. The index for final demand goods, services, and construction increased 6.2 percent over the year ending December 2022 (see —).

Note that the all commodities index includes goods at various stages of production and can count inflation multiple times in the production of the same goods. As a result, this measure can send an exaggerated inflation signal.

Producer Price Index

one-year growth, percent, not seasonally adjusted

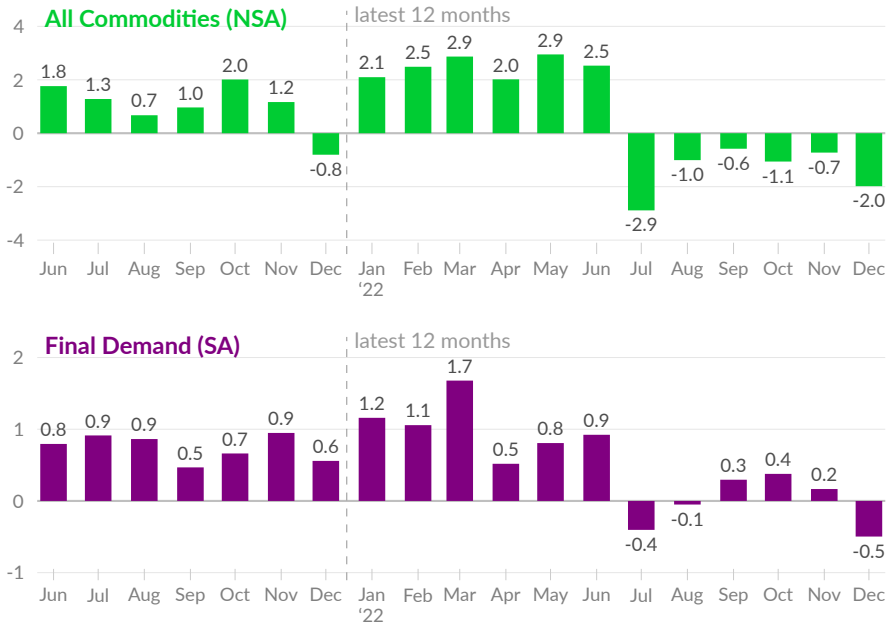


Source: Bureau of Labor Statistics

The one-month change in the prices producers receive can provide insight into recent trends. In December 2022, the one-month change in PPI final demand prices was -0.5 percent (see ■), following 0.2 percent in November 2022. The one-month change in the all commodities index was -2.0 percent (see ■) in December 2022 and -0.7 percent in November 2022.

PPI One-Month Change

monthly percent change



Source: Bureau of Labor Statistics

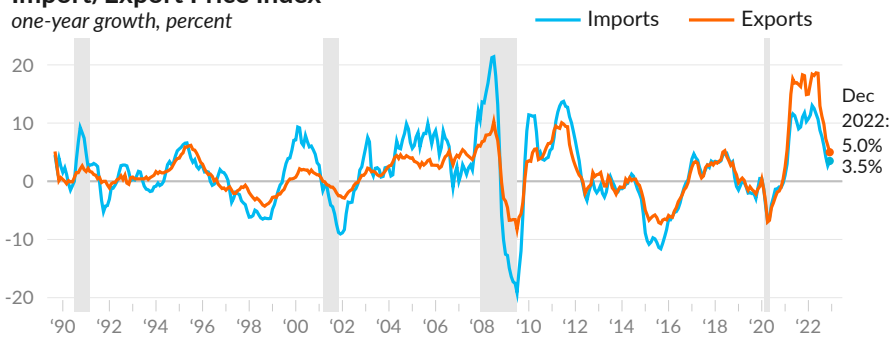
Import and Export Prices

The Bureau of Labor Statistics report changes in the prices of imports and exports. Over the year ending December 2022, **US import prices** grew 3.5 percent (see —), following an increase of 2.7 percent in November and 4.2 percent in October. Excluding fuels, US import prices increased 1.9 percent in December 2022 and grew two 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 five percent over the year ending December 2022, compared to 6.1 percent in November, 7.3 percent in October, and 1.5 percent on average during the three years ending February 2020.

Import/Export Price Index

one-year growth, percent



Source: Bureau of Labor Statistics

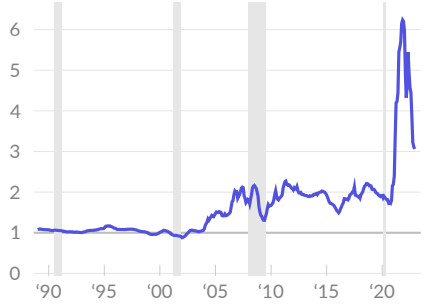
Commodity Prices

Certain commodities have macroeconomic significance. An example is oil, which is a major input to production and transportation with a particularly volatile price history. Commodity prices are also important as a signal to domestic mining operations, for example.

Two commodities that are important to the construction and manufacturing industries are lumber and steel. From the producer price index, cold-rolled steel sheet and strip prices have decreased 50.6 percent over the year ending December 2022, and increased 60.1 percent total since December 2019. Lumber prices decreased 24.6 percent over the year ending December 2022, and increased 24.5 percent total since 2019.

Steel

cold-rolled steel sheet and trim, index 1989=1



Lumber

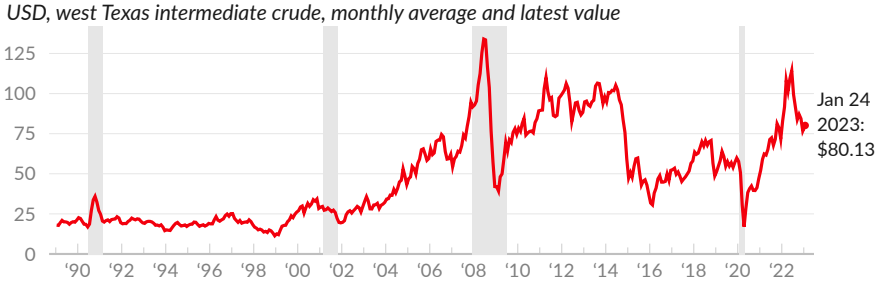
lumber and wood products, index, 1989=1

Source: Bureau of Labor Statistics

On January 24, 2023, the futures price for a barrel of west Texas intermediate (WTI) **crude oil** is $80.13 (see —). Over the past year, this measure of oil prices decreased 3.5 percent. Over the past three years, the price increased 38.8 percent. The WTI price is currently $54 below its peak monthly average price of $134 per barrel in June 2008.

Oil Price

USD, west Texas intermediate crude, monthly average and latest value



Source: Energy Information Administration

On January 30, 2023, the US average price for a gallon of **gasoline** is $3.59 (see —), an increase of $0.07 from the week prior. This gas price measure, which is the average across formulations, grades, and locations, was $3.46 one year prior, and averaged $2.69 in 2019. During 2011–2013, the average gas price was $3.61.

Gasoline Price

dollars per gallon, all grades

Source: Energy Information Administration

As of February 1, 2023, one troy ounce of **gold** sells for $1,925.60 (see —), compared to an average of $1,857.72 one year prior. Following the great recession, the monthly average price of gold reached $1,780.65 per ounce, in September 2011. In August 2020, the average monthly price reached $1,971.17 per ounce.

Gold Price

USD, monthly average and latest value

Source: London Bullion Market Association

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