US Chartbook

v0.0, April 7, 2022

Open source notes on US economic activity

Warning

Early stage draft!
This chartbook is an early draft; please report errors by email or through GitHub.

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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

The chartbook is a big menu of US economic and social indicators. While the chartbook aims for superficial beautiful, it is unlikely that you, or anyone, will be completely satisfied with its contents. Instead, the contents, through combination with links and open-source code, are meant to inspire and enable your own examination of the indicators of interest or relevance.

Unfortunately, the draft chartbook contains many errors and is not particularly comprehensible without a background in economics and patience. I'm correcting the errors as I find them. I'm also in the gradual process of editing the text for clarity.

Version 0.1 release planned for Spring 2022

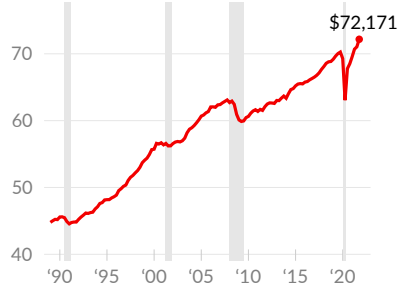
Contents

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 $24,002 billion in the fourth quarter of 2021, compared to an inflation-adjusted equivalent of $23,270 billion in 2019 Q4 and $10,580 billion in the first quarter of 1989.

The US population is growing by about two-tenths of a percent per year. GDP per capita (see —), adjusted for inflation to 2021 Q4 dollars, had increased to $70,261 in 2019 Q4 from $43,325 in 1989 Q1, and is currently $72,171, as of the fourth quarter of 2021.

GDP per capita
in thousands of 2021 Q4 dollars

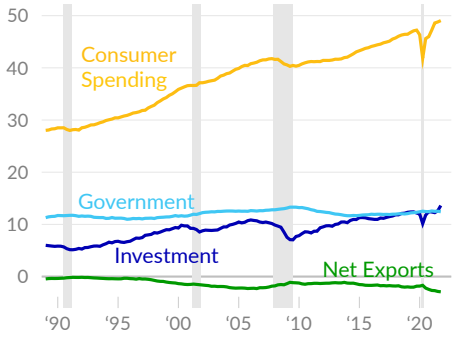


Source: Bureau of Economic Analysis

Types of Economic Activity

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

Expenditure Types
per capita, thousands of 2021 Q4 dollars



Source: Bureau of Economic Analysis

Much of the increase in real GDP per capita over the past 30 years comes from consumer spending. Domestic consumer spending (see —) is equivalent to $49,053 per person in 2021 Q4, a price-adjusted increase of $21,032 since 1989. Gross private domestic investment (see —) is equivalent to $13,612 per person in 2021 Q4, and government spending and investment (see —) totals $12,427 per person. Net exports equivalent to $2,921 per person are subtracted to reflect only domestic production (see —).

Expenditure Types
per capita, annualized, 2021 Q4 dollars

	2021 Q4	2019 Q4	2000 Q1	1989 Q1
— Gross Domestic Product	$72,171	70,261	55,726	44,782
— Consumer Spending	49,053	47,227	35,866	28,021
— Gross Private Domestic Investment	13,612	12,177	9,307	5,989
— Government Spending and Investment	12,427	12,319	11,570	11,299
— Net Exports	-2,921	-1,841	-1,355	-449
Exports	7,981	8,560	5,264	2,749
Less: Imports	10,902	9,953	6,421	3,005

Source: Bureau of Economic Analysis

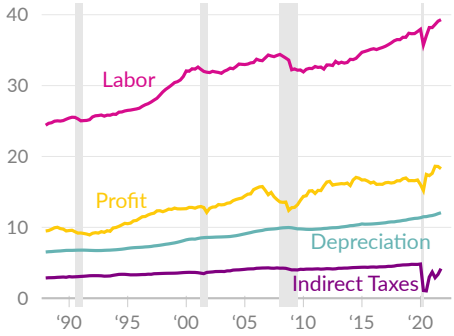
The less-discussed **income approach** calculates the level of overall economic activity from the sum of income payments from production and certain expenses incurred in production. Income from production is the payout to labor and capital. Income for labor is referred to as "compensation of employees,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

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

The Bureau of Economic Analysis report seasonally-adjusted and annualized Gross Domestic Income (GDI) of $24,549 billion in 2021 Q4, compared to an inflation-adjusted equivalent of $23,309 billion in 2019 Q4. Real GDI per capita was $73,812 in 2021 Q4 and $70,375 in 2019 Q4.

Income Types

per capita, thousands of 2021 Q4 dollars



Source: Bureau of Economic Analysis

Gross labor income per capita is equivalent to $39,301 in 2021 Q4 (see —) and $37,629 in 2019 Q4, on an annualized, seasonally-adjusted, and inflation-adjusted basis. Profits per person total $18,274 in 2021 Q4 (see —) and $16,686 in 2019 Q4, following the same adjustments. Indirect taxes less subsidies per capita total $4,174 in 2021 Q4 (see —) and $4,772 in 2019 Q4. Lastly, depreciation per capita is $12,063 in 2021 Q4 (see —) and $11,288 in 2019 Q4.

Income Types

per capita, annualized, 2021 Q4 dollars

	2021 Q4	2019 Q4	2000 Q1	1989 Q1
Gross Domestic Income	$73,812	70,375	56,587	44,639
— Labor	39,301	37,629	32,071	25,028
Wages and Salaries	32,386	30,695	26,512	20,654
Supplements	6,915	6,934	5,559	4,374
— Profit	18,274	16,686	12,636	10,011
— Indirect Taxes	4,174	4,772	3,641	2,950
Taxes on Production and Imports	5,092	5,040	3,892	3,177
Less: Subsidies	918	268	251	227
— Depreciation	12,063	11,288	8,240	6,650

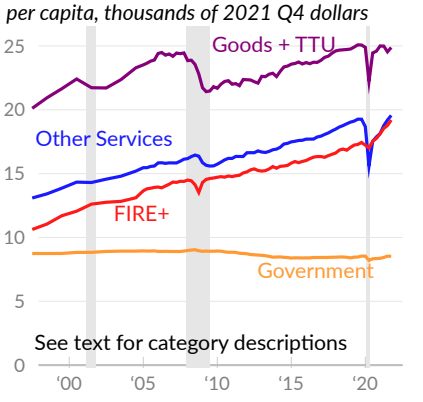
Source: Bureau of Economic Analysis

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

The first category combines private goods producing industries: agriculture, forestry, fishing, and hunting (1.1 percent of GDP in 2021 Q4); mining (1.4 percent of GDP); construction (4.1 percent); and manufacturing (11.3 percent), with trade, transportation, and utilities (TTU, combined 16.6 percent of GDP). The second category is finance, insurance, and real estate (FIRE, 20.9 percent of GDP in 2021 Q4) combined with the information industry (5.7 percent of GDP), labeled as FIRE+.

The remaining private services-providing industries include: professional and business services (13.0 percent of GDP in 2021 Q4); education, health care, and social services (8.3 percent of GDP); arts, entertainment, and recreation (3.9 percent). Separately, public-sector value added in production, at the federal, state, and local levels, is captured by the government category (11.8 percent of GDP).

Production Types
per capita, thousands of 2021 Q4 dollars



Source: Bureau of Economic Analysis

In 2021 Q4, private goods producing industries and trade, transportation, and utilities combined value added per person is $24,882, on an annualized basis, compared to $25,074 in 2019 Q4 (see —). Private finance, insurance, real estate, and information industry services combined value added per person is $19,199 in 2021 Q4 and $17,443 in 2019 Q4 (see —).

All other private services-producing industries combined value added per person is $19,562 in 2021 Q4 and $19,262 in 2019 Q4 (see —). Government value added is $8,528 per person in 2021 Q4 and $8,540 in 2019 Q4 (see —).

Production Types
per capita, annualized, 2021 Q4 dollars

	2021 Q4	2021 Q3	2019 Q4	2005 Q1	1997 (A)
— Goods and TTU	$24,882	24,541	25,074	23,521	20,115
Manufacturing	8,161	7,960	7,756	7,210	5,942
Construction	2,982	3,059	3,100	4,115	3,865
Retail Trade	4,312	4,237	4,480	4,246	3,343
— FIRE+	19,199	18,773	17,443	13,654	10,626
Finance & Insurance	6,024	5,970	5,359	4,886	3,618
Information	4,091	3,911	3,390	1,767	1,113
— Other Services	19,562	19,198	19,262	15,467	13,092
Education & Healthcare	5,996	5,898	6,022	4,653	3,999
Professional & Business	9,348	9,092	8,420	6,107	4,957
— Government	8,528	8,533	8,540	8,947	8,743

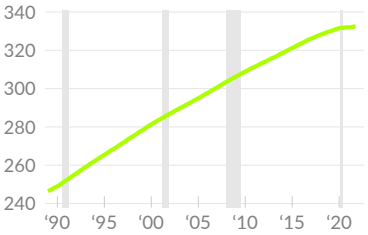
Source: Bureau of Economic Analysis

Household Inputs to Production

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

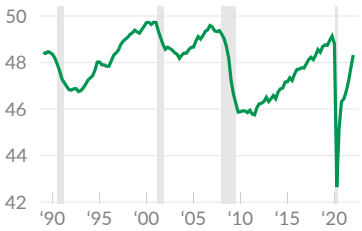
The US population is increasing (see —), though at a slower rate than in the past. Over the past 30 years, the US has added 80 million people. This means the amount of goods and services produced needed to increase by 30 percent over the period to maintain a constant standard of living. Employment of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

Population
millions of people



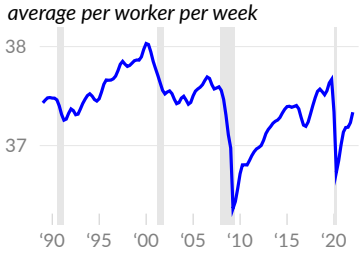
Source: BEA

Employment Rate
share of population



Source: CPS microdata

Hours Worked
average per worker per week



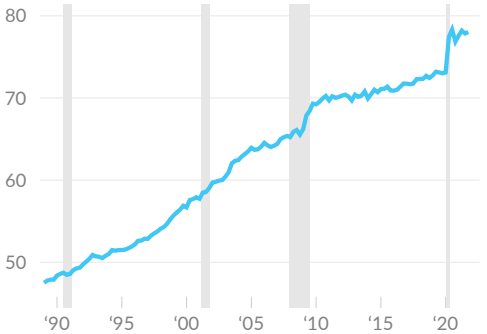
Source: CPS microdata

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

In 2021 Q4, real GDP was equivalent to roughly $78.03 per hour of work, compared to $77.85 in 2021 Q3, $73.00 in 2019 Q4, $70.91 in 2015 Q4, and $47.50 in the first quarter of 1989.

Comparing the latest data to the pre-COVID data covering 2019 Q4, annualized real GDP is $24,003 billion in the latest data and $23,271 billion in 2019 Q4. Aggregate hours worked total 308 billion in the latest quarter and 319 billion in 2019 Q4.

GDP per hour of work
2021 Q4 dollars



Source: Author's calculations

Economic Growth

Economists are concerned with changes in economic activity. This subsection discusses economic growth, recessions, and contributions to economic growth.

Real GDP Growth

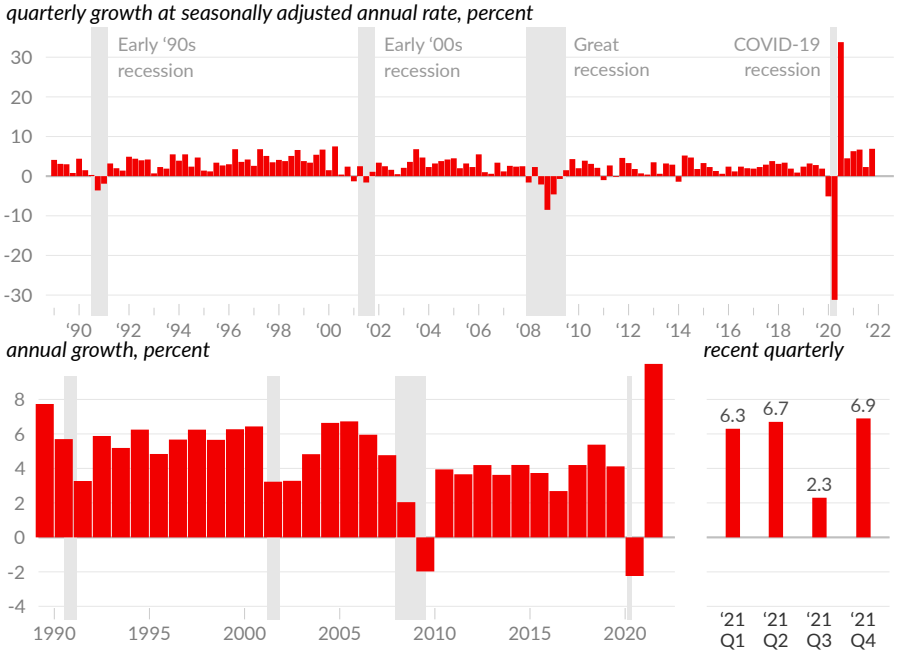
Changes in economic activity are commonly summarized using the growth rate of real gross domestic product. As seen in the previous section, economic activity has increased fairly consistently in the US. Since 1989, **real GDP growth** has averaged 2.5 percent per year (see ■). Real GDP growth rates were particularly high during the mid- to late-1990s, and averaged 3.8 percent per year from 1993 to 2000.

In the 2000s, the housing bubble artificially boosted GDP but then collapsed, leading to average annual GDP growth of only 1.8 percent from 2001 to 2013. Growth rates were somewhat higher from 2014 through 2019, averaging 2.3 percent per year.

In 2020, COVID-19 caused a rapid and unexpected economic shutdown, followed by monetary and fiscal stimulus. The result was large swings in quarterly GDP, particularly when quarterly growth is reported at an annual rate, as is the case for GDP in the US. In 2020 Q2, GDP decreased 31.2 percent, and in Q3 increased by 33.8 percent, by far the largest changes in recent history. Since 2020, real GDP growth has averaged 3.0 percent per year.

Real Gross Domestic Product Growth

quarterly growth at seasonally adjusted annual rate, percent



Source: Bureau of Economic Analysis

The swings in real GDP growth during the COVID-19 pandemic were so extreme that they make it hard to visually compare data before and after the pandemic using quarterly growth charts. As such, annual growth rates are included in the bottom left chart to make trends more visible. Additionally, the most recent four quarters are included in the bottom right chart. In the **latest data**, covering the fourth quarter of 2021, real GDP increased at an annual rate of 6.9 percent, compared to an increase of 2.3 percent in Q3, and an increase of 6.7 percent in Q2.

Recessions

The long-term pattern in real GDP growth is often described as the business cycle. Periods of economic growth are interrupted every 7–12 years by an **economic recession**, a period where the amount of economic activity falls. The National Bureau of Economic Research (NBER) identify 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 10.1 percent.

US Recessions Since 1989

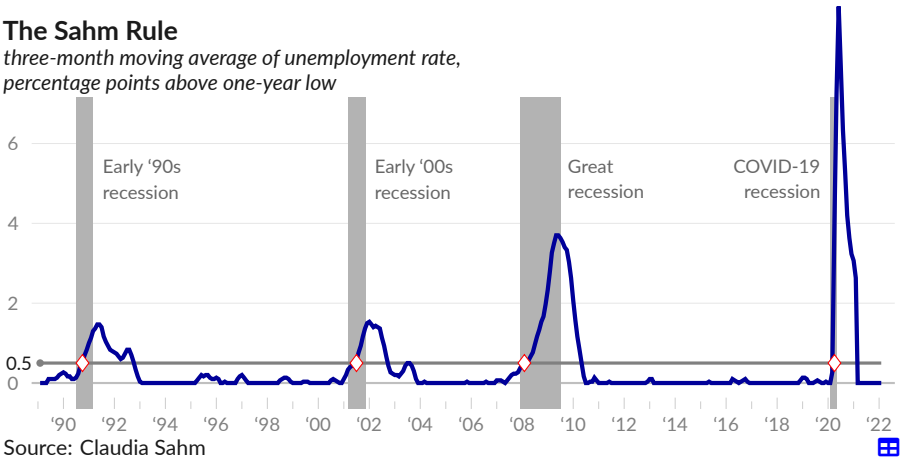
	Start Month	End Month	Recession Duration, Months	GDP Percent Change	Unemp. Rate Change*	Unemp. Rate Recovery, Months**
Early '90s Recession	Aug 1990	Mar 1991	8	-1.4	+2.4	63
Early '00s Recession	Apr 2001	Nov 2001	8	-0.1	+2.1	191
Great Recession	Jan 2008	Jun 2009	18	-3.8	+5.2	89
COVID-19 Recession	Mar 2020	Apr 2020	2	-10.1	+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



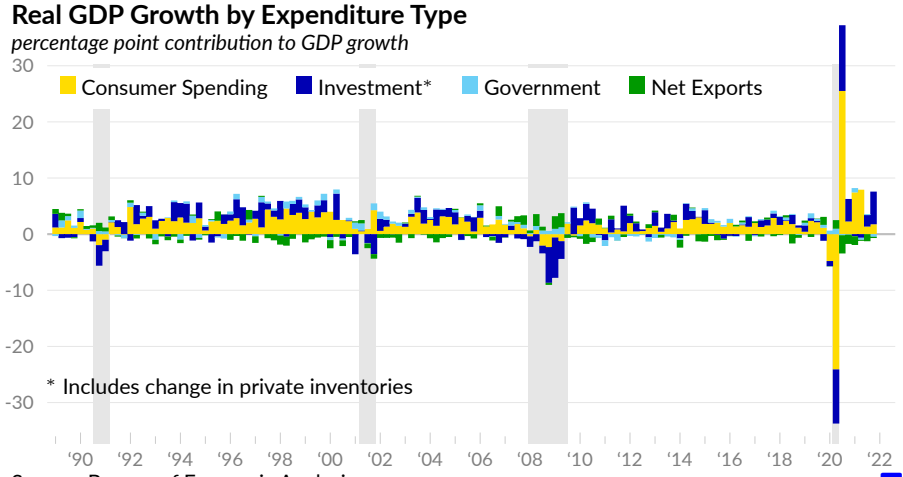
Source: Claudia Sahm

Components of Growth

The **expenditure approach** also gives insight into the sources of changes in overall economic activity. In the fourth quarter of 2021, consumer spending (see) contributed 1.76 percentage points to overall real GDP growth. Private domestic investment (see) contributed 5.82 percentage points to real GDP growth, government spending and investment (see) subtracted 0.46 percentage point, and net exports (see) subtracted 0.23 percentage point.

Real GDP Growth by Expenditure Type

percentage point contribution to GDP growth



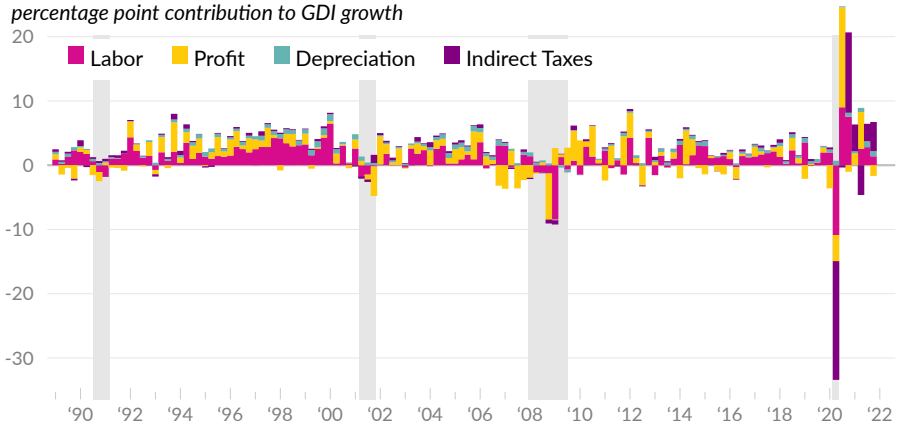
Source: Bureau of Economic Analysis

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 fourth quarter of 2021, gross domestic income increased at an annual rate of 5.1 percent, following an increase of 6.4 percent in 2021 Q3 and an increase of 4.3 percent in 2021 Q2. In the latest quarter, labor income contributed 1.38 percentage points to overall growth, following a contribution of 2.81 percentage points in 2021 Q3. Profit income subtracted 1.67 percentage points in the fourth quarter of 2021 and 0.07 percentage point in 2021 Q3. Changes in indirect tax revenue and surpluses contributed 4.53 percentage points to aggregate income growth in the latest quarter and contributed 2.71 percentage points in 2021 Q3.

Real Gross Domestic Income Growth

percentage point contribution to GDI growth



Source: Bureau of Economic Analysis

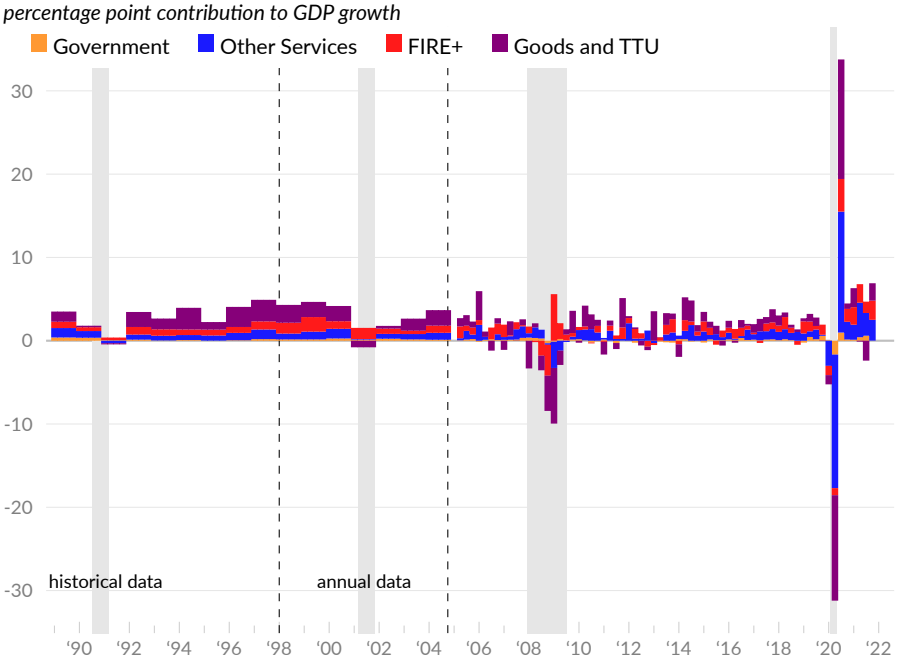
The **production approach** calculates GDP as the sum of value added–gross output minus intermediate inputs–in each sector. The broad groupings discussed above are used to identify contributions from: goods-producing sectors combined with trade, transportation, and utilities (see ■), finance, insurance,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

In 2021 Q4, the combined contribution to GDP growth from private goods-producing industries and trade, transportation, and utilities is 2.1 percentage points, following a subtraction of 2.4 percentage points in 2021 Q3, and compared to virtually no contribution in 2019 Q4. The group of private service-providing industries that include finance, insurance, real estate, as well as the information industry contributed 2.3 percentage points in 2021 Q4, contributed 1.4 percentage points in 2021 Q3, and contributed 1.2 percentage points in 2019 Q4.

Other private services-providing industries, which are wide-ranging and described above, contributed 2.5 percentage points to real GDP growth in 2021 Q3, following a contribution of 2.7 percentage points in 2021 Q3, and compared to a contribution of 0.1 percentage point in 2019 Q4. Combined federal, state, and local government did not contribute in 2021 Q4, contributed 0.6 percentage point the prior quarter, and contributed 0.6 percentage point in 2019 Q4, prior to the pandemic.

Real GDP Growth by Industry Group

percentage point contribution to GDP growth



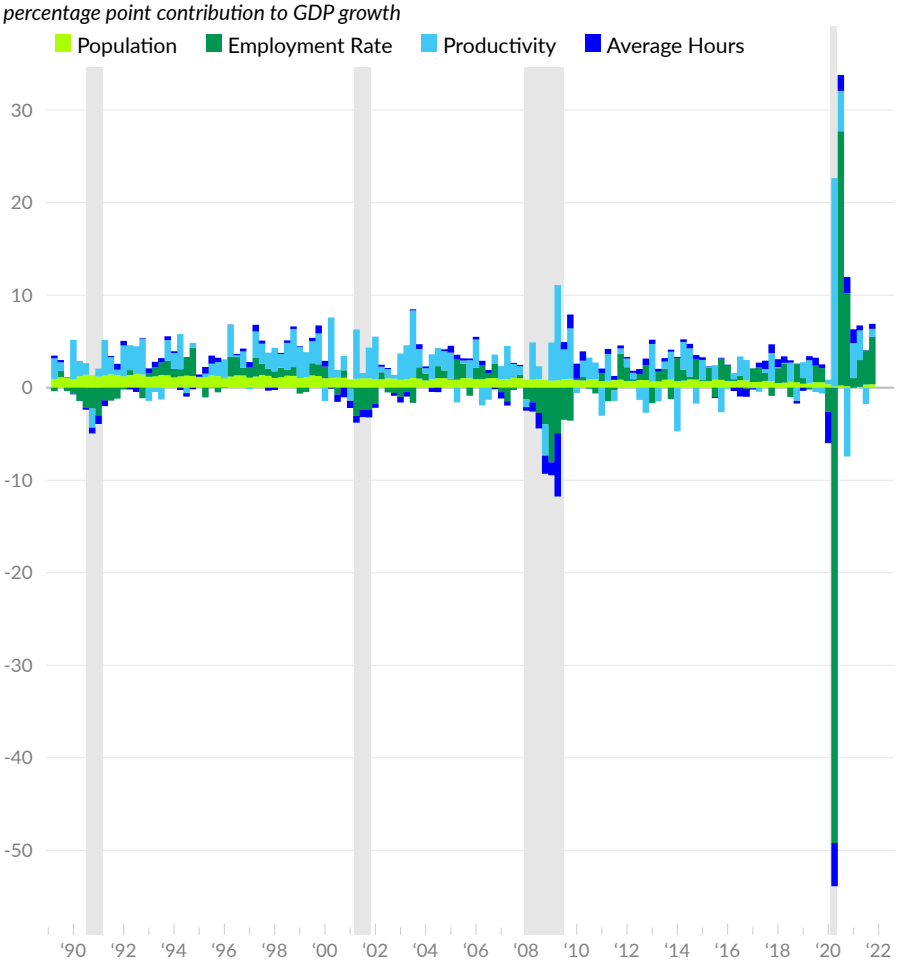
Source: Bureau of Economic Analysis

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

In 2021 Q4, population growth contributed 0.37 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 5.14 percentage points in the latest quarter, and added 1.53 percentage points in the fourth quarter of 2019. Changes in average hours worked added 0.54 percentage point to GDP growth in the latest quarter and added 0.40 percentage point in 2019 Q4. Lastly, productivity contributed 0.85 percentage point to GDP growth in 2021 Q4, compared to a reduction of 0.63 percentage point in 2019 Q4.

Real GDP Growth by Household Inputs

percentage point contribution to GDP growth



Source: Author's Calculations

Components of Economic Growth

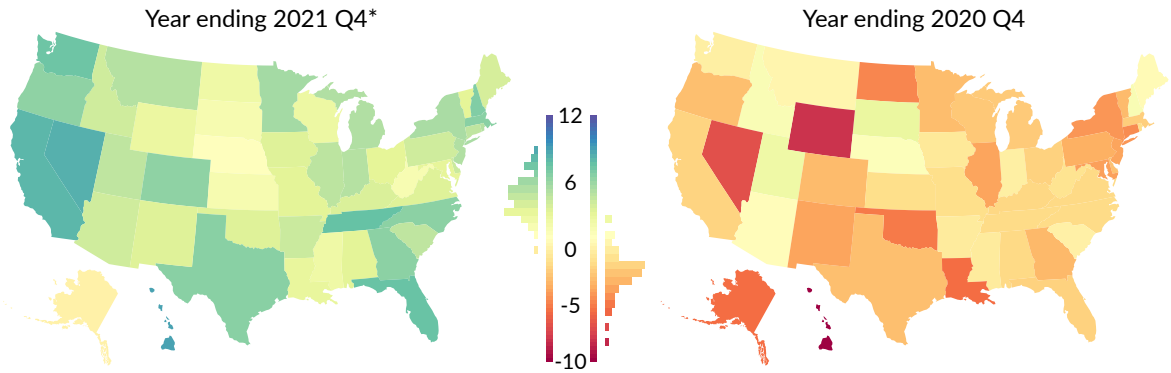
annualized percentage point contribution to real GDP/GDI growth — *moving averages*

	2021 Q4	2021 Q3	2021 Q2	2021 Q1	2020 Q4	3-year	10-year	30-year
Gross Domestic Product	6.9	2.3	6.7	6.3	4.5	2.7	2.5	2.6
Consumer Spending	1.76	1.35	7.92	7.44	2.26	1.89	1.71	1.88
Durable Goods	0.22	-2.52	1.01	3.50	0.10	0.66	0.53	0.49
Non-durable Goods	0.06	0.30	1.98	2.19	-0.17	0.74	0.47	0.39
Services	1.48	3.57	4.93	1.75	2.34	0.49	0.72	1.00
Gross Investment	5.82	2.05	-0.65	-0.37	4.01	1.00	0.95	0.76
Non-residential	0.40	0.22	1.21	1.65	1.57	0.36	0.53	0.58
Residential	0.10	-0.38	-0.60	0.60	1.34	0.20	0.20	0.08
Change in inventories	5.32	2.20	-1.26	-2.62	1.10	0.44	0.22	0.10
Government	-0.46	0.17	-0.36	0.77	-0.09	0.27	0.11	0.21
Federal	-0.29	-0.35	-0.38	0.78	-0.22	0.16	0.01	0.07
State and Local	-0.17	0.52	0.02	-0.01	0.14	0.11	0.09	0.14
Net Exports	-0.23	-1.26	-0.18	-1.56	-1.65	-0.44	-0.29	-0.23
Exports	2.24	-0.59	0.80	-0.30	2.07	-0.09	0.19	0.44
Imports	-2.46	-0.68	-0.99	-1.26	-3.73	-0.36	-0.48	-0.67
Goods and TTU	2.09	-2.39	-0.11	2.28	0.65	0.44	0.73	0.89
Manufacturing	1.20	-0.17	0.63	0.95	0.38	0.31	0.26	0.39
Construction	-0.40	-0.62	0.28	0.25	0.46	0.00	0.07	0.00
Retail Trade	0.46	-0.91	-0.97	0.96	0.01	0.04	0.13	0.18
FIRE+	2.30	1.36	2.23	2.11	1.55	1.18	0.81	0.79
Other Services	2.50	2.73	4.14	1.80	2.12	0.97	0.83	0.69
Education & Healthcare	0.60	0.28	0.52	-0.09	0.48	0.21	0.19	0.20
Professional & Business	1.52	1.54	1.48	1.55	1.55	0.74	0.56	0.40
Information	1.06	0.44	1.30	0.79	0.12	0.50	0.38	0.28
Government	0.01	0.60	0.42	0.12	0.15	0.13	0.06	0.10
Population	0.37	0.34	0.09	-0.04	0.17	0.33	0.62	0.91
Employment Rate	5.10	3.57	3.08	1.02	10.00	0.32	0.66	0.14
Average Hours	0.39	0.08	0.58	1.39	1.56	-0.10	0.14	0.02
Productivity	1.04	-1.68	2.98	3.91	-7.19	2.17	1.06	1.54
Gross Domestic Income	5.1	6.4	4.3	6.3	19.6	3.2	2.7	2.8
Labor	1.38	2.81	2.54	-0.02	7.53	1.58	1.40	1.36
Profit	-1.67	-0.07	5.74	1.84	-1.03	0.95	0.70	0.81
Depreciation	0.81	0.93	0.63	0.33	0.63	0.53	0.43	0.43
Indirect Taxes	4.53	2.71	-4.63	4.17	12.51	0.11	0.16	0.16

Source: Bureau of Economic Analysis and Author's Calculations

Real GDP Growth by State

percentage point change in real GDP



Source: Bureau of Economic Analysis

*For the year ending 2021 Q4, no states had real GDP growth of more than ten percent, 20 states had real GDP growth between five and ten percent, 30 states had less than five percent GDP growth, and one state (Alaska) had negative GDP growth.

Real GDP Growth by State

quarterly growth at seasonally adjusted annualized rate | *total growth, 2021 Q4*

	2021 Q4	'21 Q3	'21 Q2	'21 Q1	'20 Q4	1-year*	3-year	10-year
United States	6.9	2.3	6.7	6.3	4.5	5.5	6.0	24.8
Pacific	9.2	2.7	9.1	9.8	4.6	7.7	10.0	41.7
Washington	8.3	2.3	10.7	8.1	-1.6	7.3	11.7	50.8
California	9.5	2.7	9.1	10.8	5.8	8.0	10.7	43.2
Oregon	9.8	3.5	3.8	8.1	3.5	6.3	6.1	33.3
Hawaii	5.4	6.0	19.7	4.7	5.7	8.8	-5.1	8.2
Alaska	3.0	0.4	4.0	-7.0	12.9	-0.0	-4.5	-8.4
West South Central	9.3	2.7	7.4	3.6	4.3	5.7	6.6	30.8
Texas	10.1	3.7	7.8	4.2	5.3	6.4	8.6	39.2
Oklahoma	8.1	1.3	4.8	-0.3	0.7	3.4	0.9	18.2
Arkansas	5.1	0.9	4.0	6.9	2.4	4.2	5.3	13.4
Louisiana	5.7	-2.4	8.1	0.8	0.2	3.0	-2.3	-0.7
Mountain	6.5	2.1	7.3	5.0	6.3	5.2	8.7	29.6
Utah	6.5	2.8	4.0	5.4	11.3	4.7	13.3	45.3
Colorado	6.0	2.4	9.4	7.6	3.8	6.3	8.8	37.5
Idaho	8.2	-1.2	2.6	6.8	6.1	4.0	11.0	36.3
Arizona	6.2	3.4	6.2	0.4	8.8	4.0	9.3	29.6
Nevada	7.9	2.7	16.0	6.8	4.9	8.2	6.0	22.4
Montana	3.9	-0.5	5.8	11.1	5.2	5.0	7.5	19.4
New Mexico	7.6	-0.1	2.8	3.5	2.8	3.4	5.9	10.0

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	2021 Q4	'21 Q3	'21 Q2	'21 Q1	'20 Q4	1-year*	3-year	10-year
continued from previous page . . .								
Wyoming	4.6	-1.2	2.8	4.8	-0.7	2.7	-2.5	-6.5
South Atlantic	6.7	2.9	6.5	6.0	3.4	5.5	6.2	23.4
Florida	7.5	3.8	11.9	6.8	1.9	7.5	9.1	34.5
Georgia	7.5	3.1	8.1	6.8	2.8	6.4	7.0	31.5
South Carolina	6.8	1.6	5.0	5.2	3.5	4.6	7.8	27.7
North Carolina	7.6	2.4	6.0	9.5	4.8	6.3	8.0	23.2
District of Columbia	3.5	4.0	6.1	-0.8	6.6	3.2	2.3	14.0
Virginia	6.0	2.9	3.5	1.3	6.6	3.4	4.4	12.8
Maryland	5.0	1.8	-3.6	9.9	0.6	3.1	-0.3	10.4
Delaware	7.4	5.1	6.8	-2.0	2.3	4.3	5.6	3.8
West Virginia	1.7	-1.9	7.1	0.0	8.7	1.7	-1.1	3.2
New England	7.6	2.6	9.4	3.4	7.2	5.7	5.5	17.8
Massachusetts	7.8	3.8	8.9	5.5	8.2	6.5	7.5	25.6
New Hampshire	7.9	-3.7	21.9	2.4	11.5	6.7	10.5	24.3
Maine	6.8	1.8	4.3	2.4	8.4	3.8	7.5	17.6
Rhode Island	5.3	2.2	17.6	-3.6	4.6	5.1	6.0	8.0
Connecticut	7.7	2.5	7.2	1.4	4.6	4.7	-0.3	5.5
Vermont	8.0	0.6	1.5	3.0	3.6	3.2	2.0	4.3
West North Central	2.2	0.6	4.5	6.6	5.7	3.4	3.7	17.4
North Dakota	-1.8	-2.8	5.5	9.1	-0.5	2.4	-1.3	30.5
Nebraska	-0.8	-0.0	-3.7	9.4	11.1	1.1	6.2	21.5
Minnesota	5.0	2.0	9.9	5.7	4.8	5.6	3.2	19.8
Iowa	-2.3	-0.5	6.1	10.9	6.1	3.4	3.9	18.4
Kansas	1.5	-0.8	2.3	4.2	3.6	1.8	2.3	16.7
South Dakota	0.3	-1.0	1.2	7.0	10.5	1.8	5.9	14.5
Missouri	4.4	1.6	2.5	4.6	5.9	3.3	4.4	11.6
Middle Atlantic	5.7	2.6	5.7	6.0	3.7	5.0	3.3	16.6
New York	4.8	2.3	7.5	7.1	3.2	5.4	3.3	19.3
Pennsylvania	6.4	2.4	4.7	2.7	5.2	4.0	2.9	13.7
New Jersey	7.4	3.8	2.2	7.5	3.4	5.2	3.9	13.2
East South Central	7.2	1.9	3.2	7.6	4.8	5.0	5.9	16.5
Tennessee	9.9	3.1	4.0	13.7	8.3	7.6	8.6	26.6
Kentucky	5.9	1.0	2.1	5.5	1.8	3.6	4.6	12.3
Alabama	5.7	1.6	3.1	2.6	1.9	3.2	3.7	10.7
Mississippi	4.1	0.6	2.5	2.5	5.1	2.4	4.0	6.8
East North Central	5.5	0.9	4.7	5.8	3.7	4.2	2.8	14.2
Indiana	5.5	0.4	4.4	10.0	4.3	5.0	5.7	19.9
Michigan	5.8	-0.2	12.7	2.6	2.4	5.1	2.8	16.8
Ohio	5.5	1.0	3.0	3.3	4.0	3.2	3.7	15.1
Wisconsin	6.1	0.0	2.9	1.5	5.5	2.6	2.2	12.0
Illinois	5.1	2.1	2.4	9.8	3.5	4.8	1.1	10.6

Source: Bureau of Economic Analysis

Financial Accounts

The Federal Reserve report transactions and levels for US assets and liabilities in the **financial accounts**. This section provides a high-level overview of the financial accounts, including liabilities, sectoral balances, wealth, and investment.

Liabilities

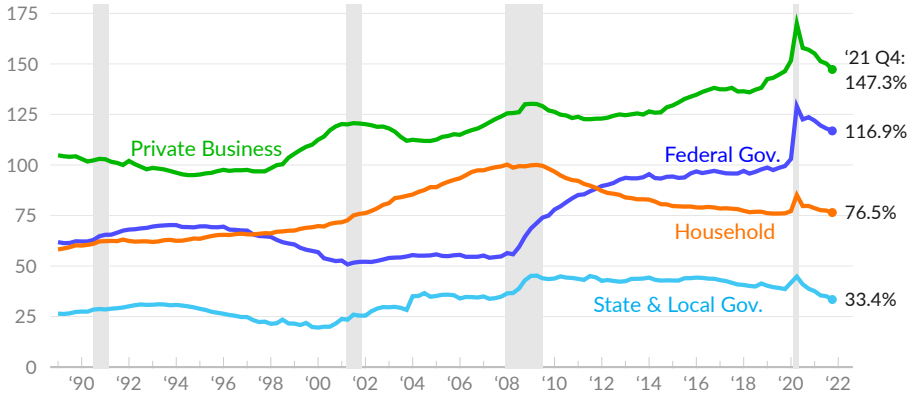
Total liabilities is the outstanding debt at a point in time. While the vast majority of US borrowing comes from US lending, that is the net result on balance sheets is zero, it is still useful to consider how total liabilities vary by major sector and over time.

Private business liabilities, corporate- and non-corporate, total $35.3 trillion in the fourth quarter of 2021, equivalent to 147.3 percent of GDP (see —). In 2019, business liabilities were equivalent to 144.2 percent of GDP, and during the 1990s they were 99.6 percent of GDP, on average. Private household and nonprofit liabilities are equivalent to 76.5 percent of GDP in 2021 Q4 (see —), 76.0 percent in 2019, and 64.2 percent in the 1990s.

Federal government liabilities are equivalent to 116.9 percent of GDP in 2021 Q4 (see —), compared to 98.6 percent of GDP in 2019 and 66.2 percent of GDP during the 1990s. Combined state and local government liabilities total 33.4 percent of GDP in 2021 Q4 (see —), 39.4 percent in 2019, and 26.8 percent in the 1990s.

Total Liabilities by Sector

share of GDP, percent



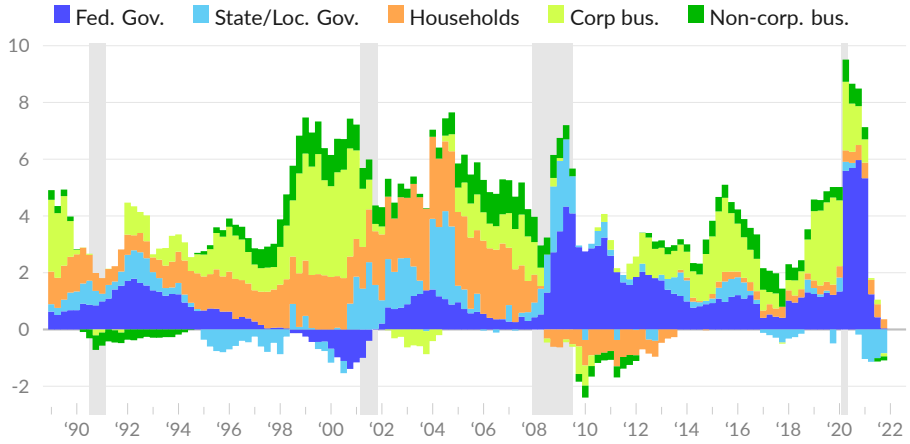
Source: Federal Reserve, Bureau of Economic Analysis

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

Total domestic liabilities decreased 0.7 percent over the year ending 2021 Q4, after adjusting for inflation. Federal government borrowing did not contribute to the total (see), while the state and local government subtracted 0.84 percentage point (see). Households and nonprofits contributed 0.32 percentage point to total annual growth (see), corporate businesses subtracted 0.11 percentage point (see), and non-corporate businesses subtracted 0.14 percentage point (see).

Real Debt Growth

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



Source: Federal Reserve, Bureau of Economic Analysis

Real Debt Growth

contribution to one-year real growth

	2021 Q4	'21 Q3	'21 Q2	'21 Q1	'20 Q4	*moving averages* 3-year	10-year	30-year
Total	-0.74	-0.09	0.68	6.09	8.31	4.58	3.35	3.87
Corporate Business	-0.11	0.16	0.06	0.82	1.37	1.61	1.25	1.07
Debt Securities	-0.24	-0.12	-0.14	0.47	0.68	0.26	0.36	0.34
Loans	0.21	-0.02	-0.29	-0.14	0.34	0.32	0.20	0.10
Non-corporate Business	-0.14	-0.12	0.00	0.43	0.62	0.36	0.39	0.45
Commercial Mortgages	-0.04	-0.02	-0.03	0.03	0.07	0.04	0.06	0.07
Household & Nonprofit	0.32	0.46	0.51	0.55	0.53	0.39	0.12	0.89
Home Mortgages	0.25	0.29	0.27	0.38	0.40	0.24	-0.08	0.58
Consumer Credit	0.02	0.02	0.00	-0.07	-0.07	0.07	0.16	0.21
State & Local Government	-0.84	-1.01	-1.14	-1.04	-0.18	-0.22	0.04	0.36
Federal Government	0.04	0.43	1.24	5.33	5.97	2.45	1.55	1.10

Source: Federal Reserve, Bureau of Economic Analysis

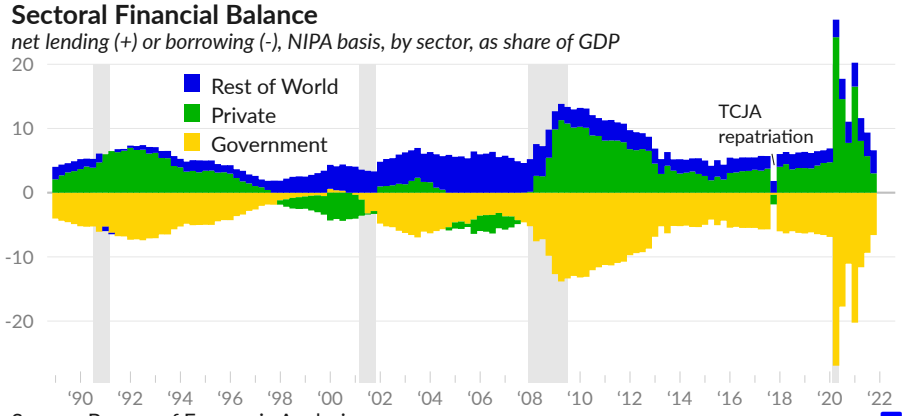
Sectoral Balances

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



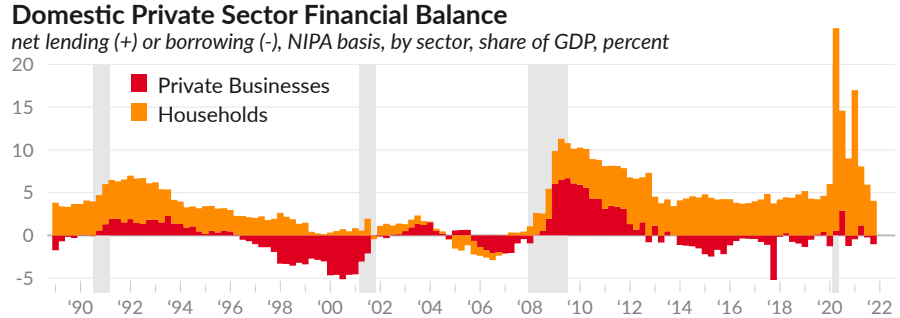
Source: Bureau of Economic Analysis

In 2021 Q4, the US private sector was a net lender (running a surplus) of the equivalent of 3.0 percent of GDP, substantially below the 4.1 percent surplus in 2019. The rest of the world was a net lender to the US to the equivalent of 3.6 percent of GDP in 2021 Q4, compared to 2.3 percent in 2019. Balancing these transactions, the government (federal, state, and local combined) was a net borrower (running a deficit) of the equivalent of 6.6 percent of GDP in 2021 Q4, compared to 6.4 percent in 2019.

Breaking out the two main categories in the private sector, households were net lenders (ran a surplus) of the equivalent of 4.0 percent of GDP in 2021 Q4 (see ■), while private businesses–corporate and noncorporate–were net borrowers of the equivalent of 1.0 percent of GDP (see ■). In 2019, households were net lenders of 4.4 percent, and private businesses were net borrowers of 0.3 percent.

Domestic Private Sector Financial Balance

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



Source: Bureau of Economic Analysis

Wealth

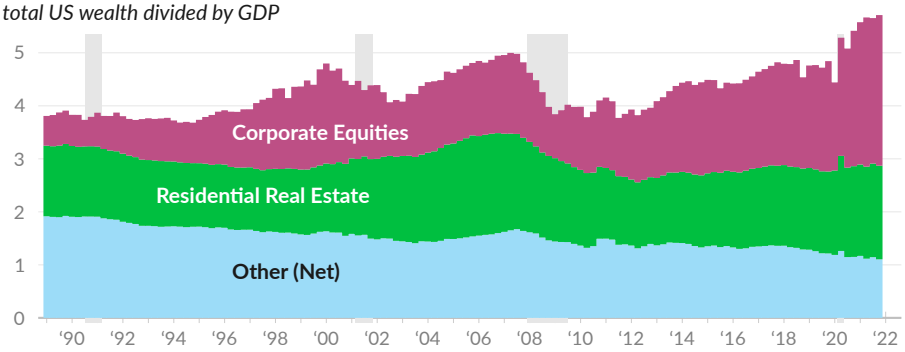
Net wealth is the sum of domestic tangible assets, such as land (excluding public land), structures, and equipment, minus foreign financial claims on these assets, plus domestic claims on foreign assets. US wealth totals $137.1 trillion in 2021 Q4, equivalent to $412,200 per capita, or a 5.71 multiple of GDP (571.2 percent of GDP.)

The ratio of US wealth to GDP has increased 185.7 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 2.84 multiple of GDP in 2021 Q4, 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 1.77 multiple of GDP in 2021 Q4, 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 1.10 multiple of GDP in 2021 Q4 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 show 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

	2021 Q4	'21 Q3	'21 Q2	'20 Q4	2019	2005 –'07	1989
US Net Wealth	571.2	565.5	566.7	541.5	477.3	484.2	385.5
Households & Nonprofits	210.1	209.6	206.1	202.7	183.9	217.7	169.2
Noncorporate Businesses	75.1	75.2	73.2	72.9	67.4	72.2	71.1
Domestic Corporations	283.4	272.6	280.2	253.4	202.3	136.1	76.4
Federal Government	16.8	17.0	17.0	17.4	16.7	18.3	25.7
State & Local Government	57.6	57.5	57.3	57.8	55.5	48.8	41.9
Net Claims on ROW	-71.8	-66.4	-67.2	-62.7	-48.4	-8.8	1.2
US Claims on ROW	123.9	125.3	126.5	122.9	107.8	86.9	28.8
Less: ROW Claims on US	195.7	191.7	193.7	185.5	156.3	95.7	27.6

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.

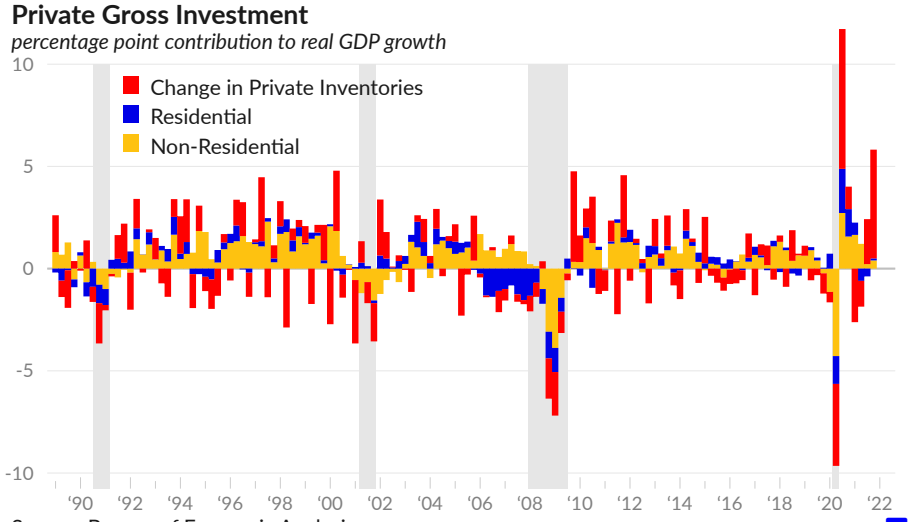
Additionally, the change in private inventories (see ■) at the end of the accounting period, whether intentional or unintentional, affects GDP growth in the period. Inventory investment is grouped in the national accounts with gross private investment, but is not fixed investment.

In the fourth quarter of 2021, private fixed investment, which does not include inventory investment, totals $4.3 trillion, equivalent to 17.8 percent of GDP. Non-residential (business) fixed investment totals $3.2 trillion, or 13.1 percent of DP, while residential fixed investment totals $1.1 trillion (4.7 percent of GDP).

During the quarter, private fixed investment contributed 0.50 percentage point to real GDP growth. Non-residential fixed investment contributed 0.40 percentage point, while residential fixed investment contributed 0.10 percentage point. The change in private inventories contributed 5.32 percentage points.

Private Gross Investment

percentage point contribution to real GDP growth



Source: Bureau of Economic Analysis

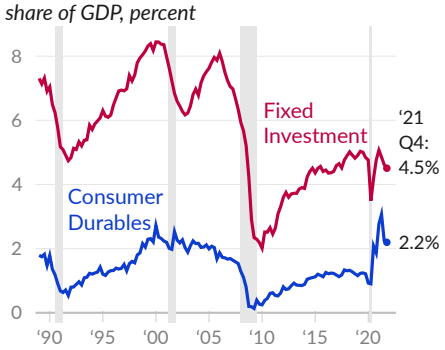
Net Fixed Investment

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 2021 Q4, gross fixed investment was $5.1 trillion, depreciation was $4.0 trillion, and net fixed investment was $1.1 trillion, equivalent to 4.5 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 $527 billion in 2021 Q4, or 2.2 percent of GDP (see —). Consumer durable goods net fixed investment was 1.2 percent of GDP in 2019.

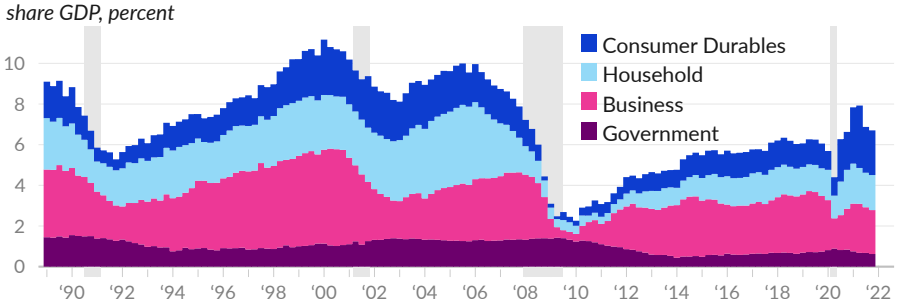
Net Fixed Investment
share of GDP, percent



Source: Federal Reserve, BEA

Levels of net fixed investment vary by sector and over time. In 2021 Q4, household sector net fixed investment, excluding consumer durables, was equivalent to 1.7 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 2.2 percent of GDP in 2021 Q4, and 2.9 percent in 2019 (see ■). Government net fixed investment is equivalent to 0.6 percent of GDP in 2021 Q4 and 0.7 percent in 2019 (see ■).

Net Fixed Investment by Sector or Type
share GDP, percent



Source: Federal Reserve, Bureau of Economic Analysis

	2021 Q4	'21 Q3	'21 Q2	'20 Q4	2019	2003 –'06	1999 –'01
— Net Fixed Investment	4.51	4.62	4.85	4.76	4.95	7.33	8.03
■ Business	2.16	2.25	2.41	2.01	2.89	2.55	4.27
Nonfin. Noncorp. Business	0.36	0.37	0.40	0.41	0.39	0.58	0.61
Nonfin. Corporations	1.76	1.79	1.84	1.43	2.22	1.74	3.17
■ Government	0.62	0.68	0.68	0.84	0.72	1.31	1.10
State & Local Gov.	0.45	0.49	0.51	0.66	0.60	1.08	1.13
Federal Gov.	0.17	0.19	0.17	0.18	0.11	0.23	-0.03
■ Household & Nonprofit	1.72	1.70	1.76	1.91	1.34	3.46	2.67
— / ■ Consumer Durables	2.20	2.25	3.07	1.87	1.21	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 savings 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.

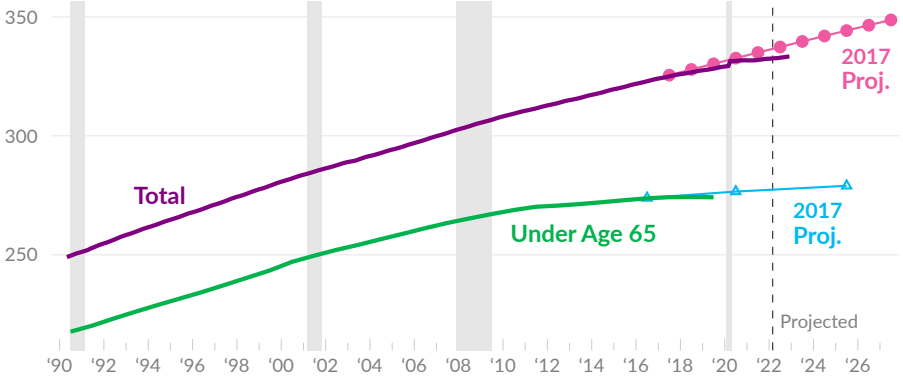
Population

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 latest population estimates, released on December 21, 2021, show the US resident population is 332.0 million in March 2022 (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

	Mar 2022	2019	2018	2010	2000	1990	*Projected* 2025
Total Resident Population	332.5	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

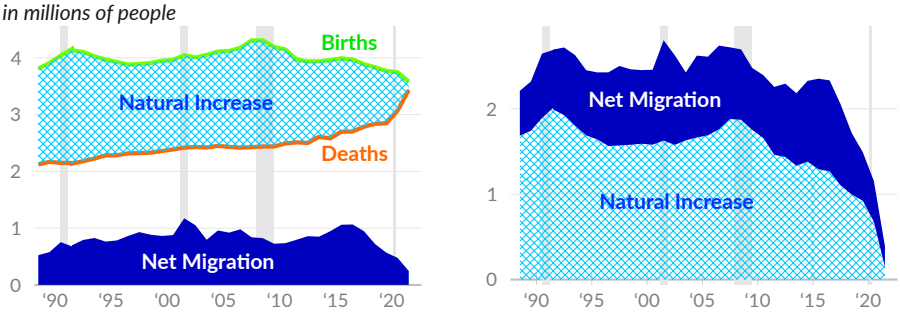
Source: Census Bureau

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 March 2022, the **resident** population is 333.0 million, while the more-comprehensive resident population **including armed forces overseas** is 333.3 million, and the more-narrow **civilian noninstitutionalized** population, which is used in labor statistics, is 328.3 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 March 2022, the **household** population is 325.3 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.

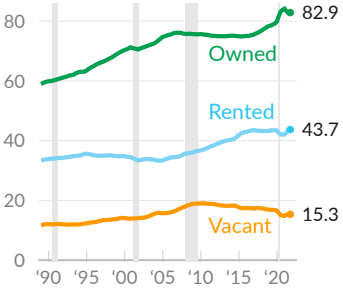
Lastly, an important related concept, **households**, is measured as occupied housing units. The number of households varies over time, separately from the population, as people make changes in their living arrangements. Over the year ending 2021 Q4, there were an average of 126.6 million households, compared to 94.2 million in 1990.

Household Formation

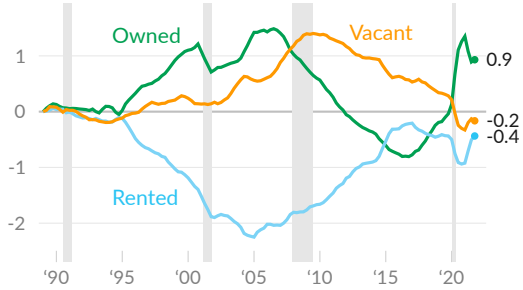
Households are measured as **occupied housing units**, whether occupied by the owner or rented. Over the year ending 2021 Q4, there were an average of 126.6 million total occupied housing units in the US, of which 43.7 million (34.5 percent) were rented, and 82.9 million (65.5 percent) were owner-occupied. 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



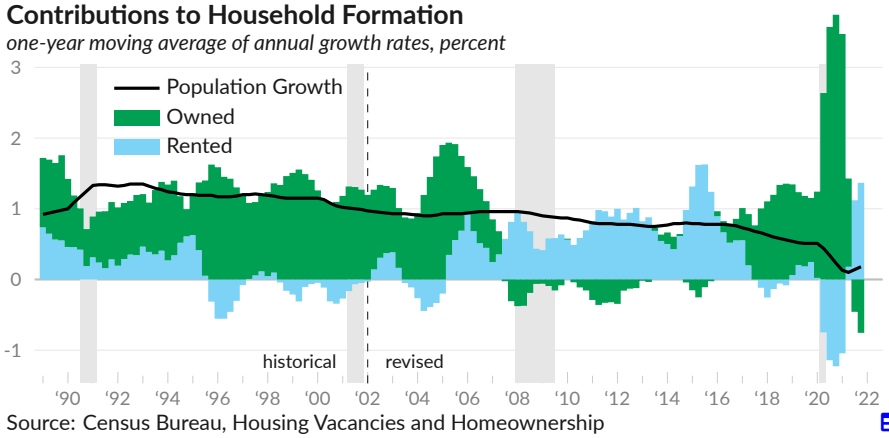
Source: Census Bureau

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 2021 Q4, the average annual **household formation rate** was 1.6 percent, while annual population growth averaged 0.3 percent. Changes in the number of owner-occupied households contributed 1.7 percentage points on an average basis (see ■), and changes in rented households subtracted 0.1 percentage point (see ■). Over the year ending 2021 Q4, the household formation rate averaged 0.6 percent, of which owner-occupied households subtracted 0.8 percentage point, and rented households contributed 1.4 percentage points.

Contributions to Household Formation

one-year moving average of annual growth rates, percent



Source: Census Bureau, Housing Vacancies and Homeownership

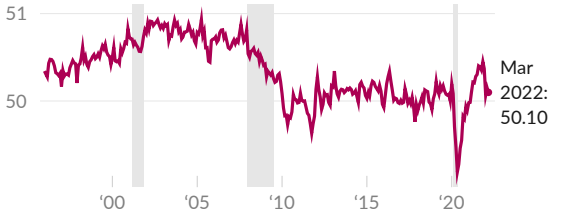
Headship Rate

Individual decisions about starting a household or living with family are influenced by economic conditions. The ratio of households to people age 16 or 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 49.19 percent during May 2020, and is currently 50.10 percent, as of March 2022 (see —).

Aggregate Headship Rate

people age 16 or older, percent, seasonally adjusted



Source: Author's Calculations from CPS

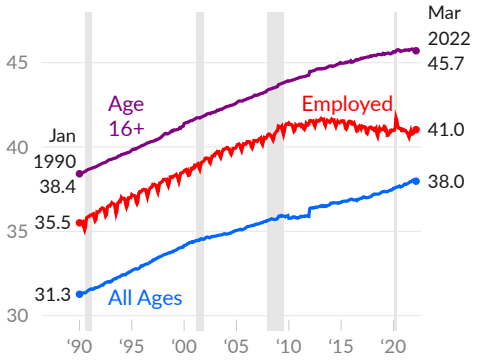
Age

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

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, as of March 2022, compared to 31.3 in January 1990 (see —). The median worker is 41 in March 2022, and 35.5 in January 1990 (see —).

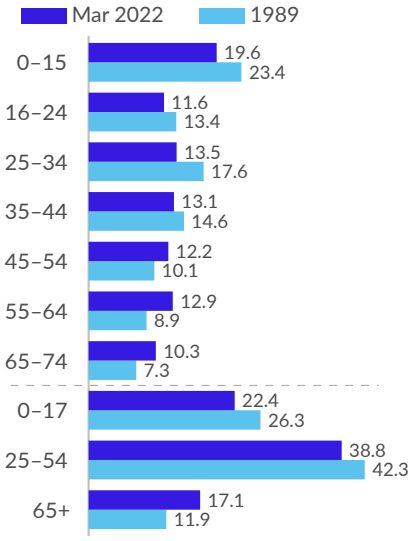
Median Age
by group, in years



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 25–54 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

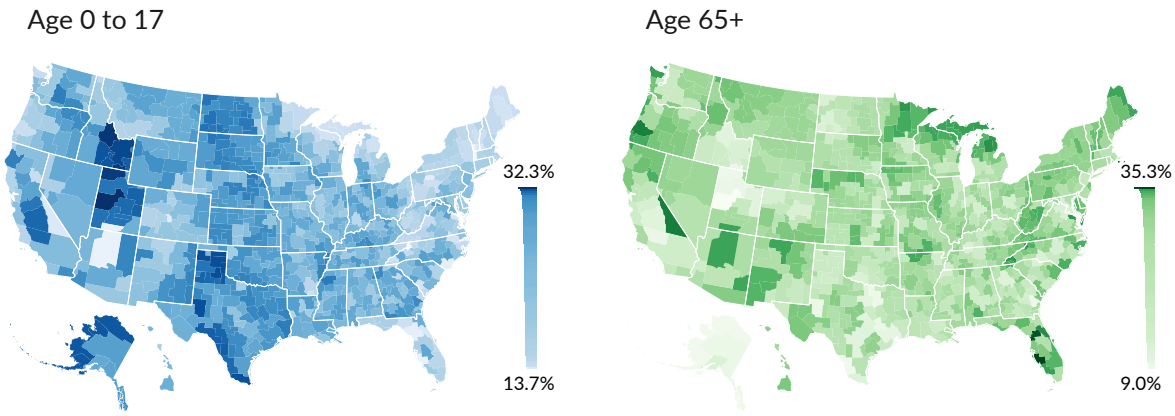
The noninstitutionalized civilian population used in most labor statistics totals 327.8 million in March 2022. Of this, 19.6 percent are under the working age of 16, equivalent to 64.4 million people. In 1989, the under-16 population was 23.4 percent of the total. The juvenile population, those under 18, is 73.4 million, equivalent to 22.4 percent of the population in March 2022, and compared to 26.3 percent in 1989.

The core of workforce is historically those between the ages of 25 and 54. The age 25–54 group contains 127.2 million people and comprises 38.8 percent of the population in March 2022. The group made up 42.3 percent of the population in 1989. The age 55 to 64 group makes up 12.9 percent of the total in the latest data and 8.9 percent in 1989. Those above the age of 65 comprise 17.1 percent in March 2022 and 11.9 percent in 1989.

Mapping American Community Survey data to commuter zones gives insight on the **age of local areas**. In 2020, among commuter zones with a population of at least 100,000, the commuter zone (listed by largest city) with the highest share of its population under 18 is Provo, UT (32.3 percent), followed by Logan, UT (31.3 percent), and Pocatello, ID (30.6 percent). The commuter zones with lowest share of the local population under 18 were Pittsfield, MA (14.5 percent), Sarasota, FL (15.0 percent), and Flagstaff, AZ (15.0 percent).

The age 65 or older population is disproportionately concentrated in Florida. The commuter zone with the highest share of its population over 64 is Sarasota, FL (35.3 percent), followed by Ocala, FL (33.9 percent), and Roseburg, OR (29.7 percent). The commuter zones with lowest local over-64 population share were Provo, UT (9.0 percent), Laredo, TX (10.5 percent), and Logan, UT (10.6 percent).

Age Group Share of Commuter Zone Population, 2020



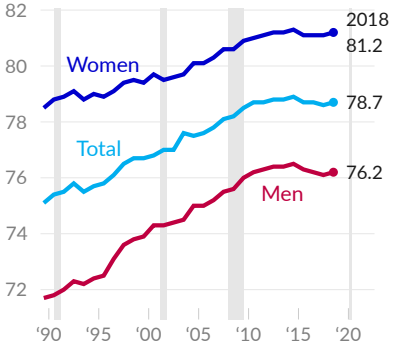
Source: American Community Survey, Dorn

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 2018, US life expectancy at birth is 78.7 years (see —), a decrease of 0.2 years years since 2014, but an increase of 3.6 years years since 1989. Life expectancy for men is 76.2 years in 2018, compared to 76.5 years in 2014 and 71.7 years in 1989 (see —). Women born in 2018 are expected to live 81.2 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.

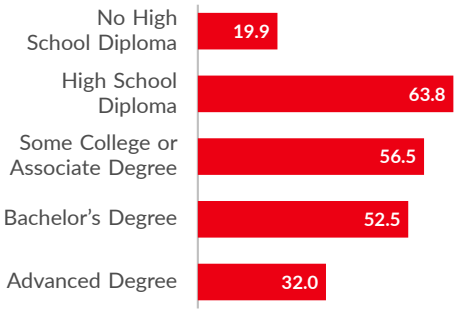
Education

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

Over the year ending March 2022, 84.5 million people over the age of 25, or 37.6 percent of the total, have at least a bachelor's degree, with 32.0 million of those, or 14.2 percent of the total, holding an advanced degree such as a master's degree, medical or law degree, or PhD. An additional 56.5 million people have some college coursework but no degree or have an associate degree. A total of 63.8 million have a high school diploma but no college, while 19.9 million have no high school diploma.

Highest Level of Education

age 25+ population, in millions, March 2022



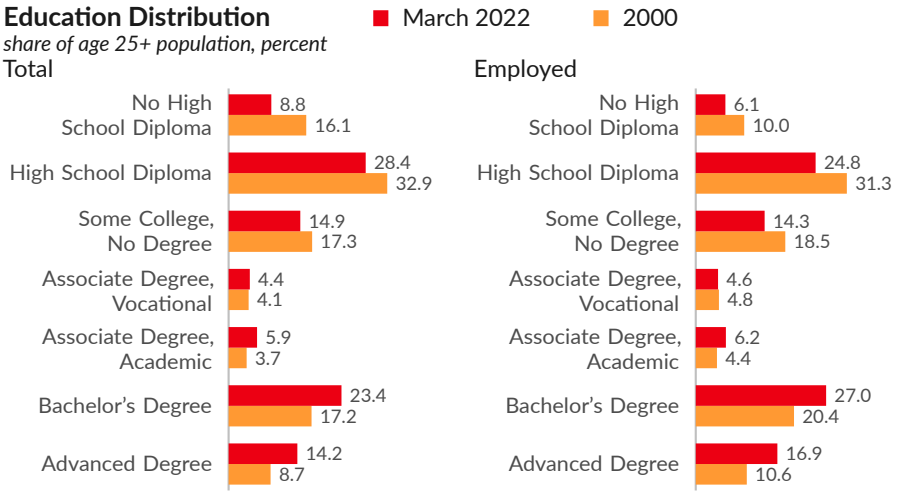
Source: Author's Calculations from CPS

The share of the population with a bachelor's degree or advanced degree increased by 11.7 percentage points since 2000. The increase is even more pronounced among those who are employed; 43.9 percent have a college degree or advanced degree in March 2022, an increase of 13.0 percentage points since 2000.

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

Education Distribution

share of age 25+ population, percent



Source: Author's Calculations from CPS

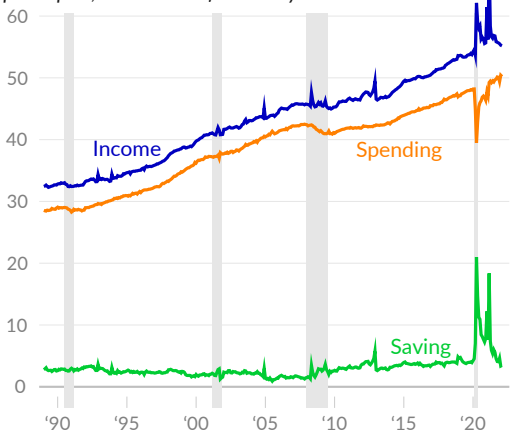
Income, Spending, and Saving

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 $18.4 trillion, on an annualized basis, in February 2022, equivalent to $55,179 per person (see —). Personal consumption expenditures, or **consumer spending**, totals $16.7 trillion in February 2022, or $50,228 per person (see —). **Saving**, calculated as after-tax income minus consumer spending, totals $1.1 trillion, or $3,452 per person (see —).

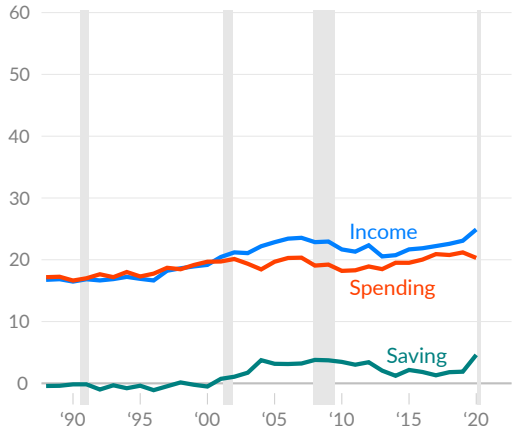
The Consumer Expenditure Survey provides data on typical income, spending, and saving, measured as the median rather than the average. Median income, spending, and saving are not affected by the activities of the highest income families, which skew mean or average data. Saving is calculated as after-tax income minus spending, excluding spending on pensions (which count as saving). In 2020, after-tax income is $24,905 per person for the middle fifth of households (see —). Spending for these households is $20,301 per person (see —), and saving is $4,604 per person (see —).

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



Source: Bureau of Economic Analysis

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



Source: Consumer Expenditure Survey

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

	Feb '22	Jan '22	Dec '21	Nov '21	Feb '21	Feb '19
Personal income	63,571	63,645	63,965	64,048	63,933	60,882
Personal current taxes	8,392	8,366	8,448	8,387	7,716	7,232
— After-tax income	55,179	55,279	55,518	55,661	56,216	53,650
— Consumer spending	50,228	50,423	49,379	50,091	47,095	47,121
— Personal saving	3,452	3,355	4,637	4,059	7,615	4,737

Source: Bureau of Economic Analysis

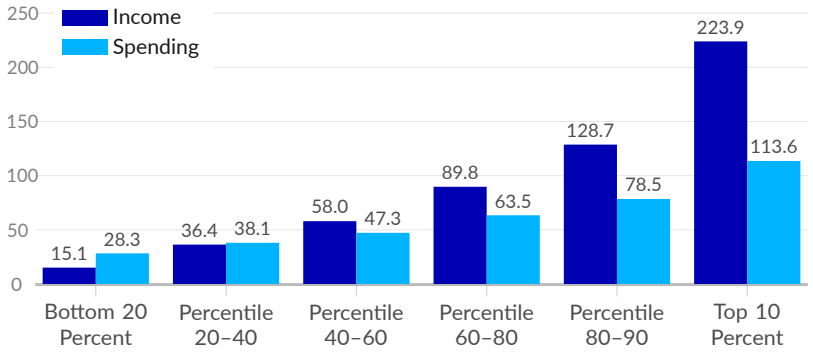
Distribution by Income

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

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

Household Income and Spending, by Income Percentile

thousands of 2020 dollars



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

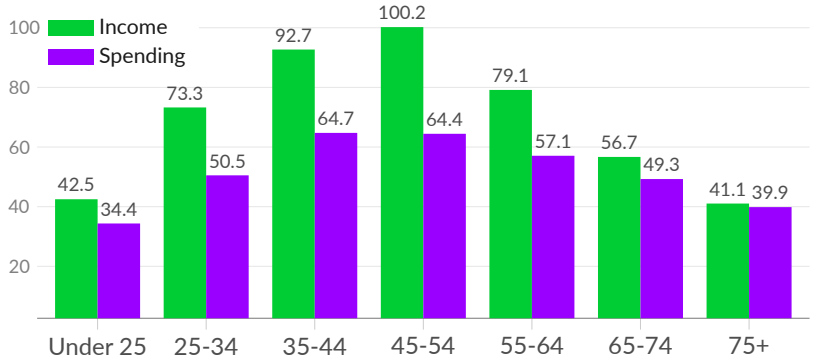
Distribution by Age

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

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

Household Income and Spending, by Age of Reference Person

thousands of 2020 dollars



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

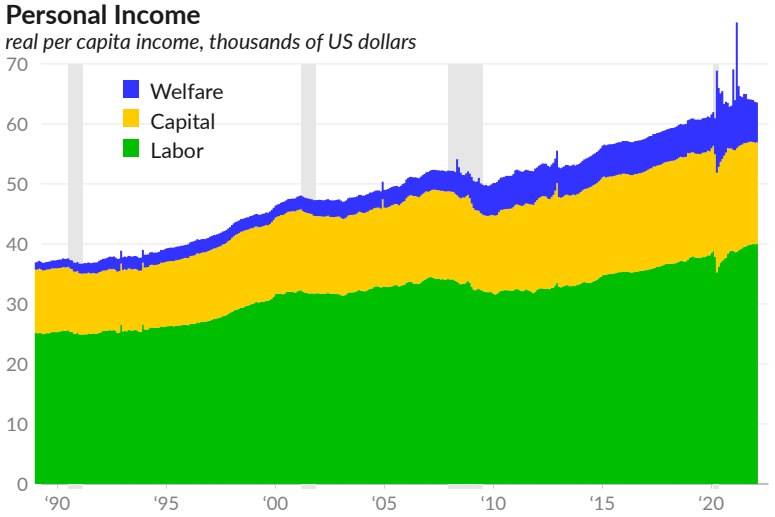
Income to Persons

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

In February 2022, annualized personal income is $63,571 per capita. Labor income totals $39,989 per person; capital and proprietor income is $16,922 per person; and welfare or transfer income is $6,661 per person.

Personal Income

real per capita income, thousands of US dollars



Source: Bureau of Economic Analysis; Author

Personal Income by Source

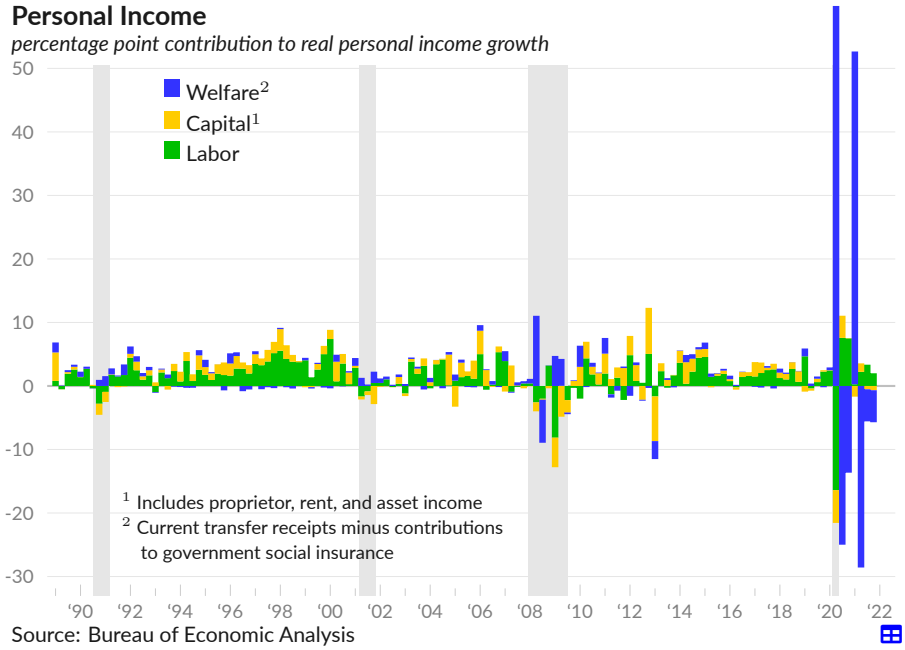
per capita, annualized, February 2022 US dollars

	Feb '22	Jan '22	Dec '21	Nov '21	Feb '21	Feb '19
Personal income	63,571	63,645	63,965	64,048	63,933	60,882
■ Labor	39,989	39,934	39,977	39,916	38,605	37,828
Wages and salaries	32,981	32,917	32,954	32,889	31,536	30,788
Supplements	7,008	7,017	7,023	7,027	7,068	7,040
■ Capital	16,922	16,945	17,017	17,109	17,018	17,431
Proprietors' income	5,601	5,589	5,609	5,708	5,427	5,304
Rental income	2,275	2,273	2,270	2,273	2,296	2,293
Personal interest income	5,057	5,062	5,064	5,064	5,223	5,491
Personal dividend income	3,989	4,020	4,074	4,065	4,072	4,343
■ Welfare	6,661	6,767	6,972	7,024	8,310	5,623
Social security	3,597	3,617	3,420	3,441	3,543	3,401
Medicare	2,630	2,619	2,605	2,590	2,607	2,565
Medicaid	2,427	2,419	2,392	2,388	2,230	1,997
Unemployment insurance	72	80	92	114	1,786	95
Veterans' benefits	533	528	522	517	488	419
Other	2,258	2,356	2,774	2,803	2,355	1,662
Less welfare contributions	-5,062	-5,057	-5,039	-5,034	-4,899	-4,697

Source: Bureau of Economic Analysis

Personal Income

percentage point contribution to real personal income growth



Source: Bureau of Economic Analysis

Aggregate real personal income decreased at an annualized rate of 3.71 percent in 2021 Q4. Labor income contributed 2.00 percentage points to overall growth, capital income subtracted 0.67 percentage point, and welfare income subtracted 5.04 percentage points.

Personal Income by Source

percentage point contribution to real personal income growth

	2021 Q4	'21 Q3	'21 Q2	'21 Q1	'20 Q4	*moving averages* 3-year	10-year	30-year
Personal income	-3.71	-2.22	-25.02	50.98	-6.10	4.00	3.17	2.98
Labor	2.00	3.35	2.22	0.27	7.50	1.29	1.59	1.59
Wages and salaries	2.08	3.28	2.36	0.08	6.64	1.25	1.39	1.32
Supplements	-0.09	0.07	-0.14	0.19	0.86	0.04	0.20	0.28
Capital	-0.67	-0.52	1.34	-1.68	0.05	-0.15	0.65	0.75
Proprietors' income	-0.70	-0.10	1.74	-0.77	-0.74	0.09	0.16	0.30
Rental income	0.06	0.06	-0.19	0.00	-0.14	-0.01	0.08	0.17
Personal interest income	-0.09	-0.46	-0.27	0.11	0.13	-0.15	0.11	0.04
Personal dividend income	0.06	-0.02	0.07	-1.02	0.79	-0.07	0.30	0.25
Welfare	-5.04	-5.05	-28.58	52.39	-13.65	2.86	0.93	0.63
Social security	-0.14	-0.13	-0.23	0.17	0.09	0.11	0.15	0.15
Medicare	0.16	0.01	-0.19	-0.35	-0.16	0.07	0.11	0.15
Medicaid	-0.08	0.66	0.38	0.27	-0.29	0.20	0.16	0.14
Unemployment insurance	-4.45	-4.06	-1.53	6.27	-9.27	0.48	0.10	0.05
Veterans' benefits	0.08	0.07	0.03	0.03	0.03	0.06	0.05	0.03
Less welfare contributions	-0.20	-0.35	-0.23	-0.44	-0.73	-0.22	-0.28	-0.20

Source: Bureau of Economic Analysis

The Bureau of Economic Analysis report an inflation-adjusted one-year change in after-tax income per person of -1.9 percent in February 2022, -10.0 percent in January 2022, and 3.0 percent in February 2021 (see —). Over the past year, the measure has averaged 0.2 percent. During the three years before the COVID-19 pandemic, per capita after-tax income grew at an average annual rate of 2.2 percent.

After-Tax Income Growth

annual growth, per capita real disposable personal income, percent

Source: Bureau of Economic Analysis

Distribution of Personal Income

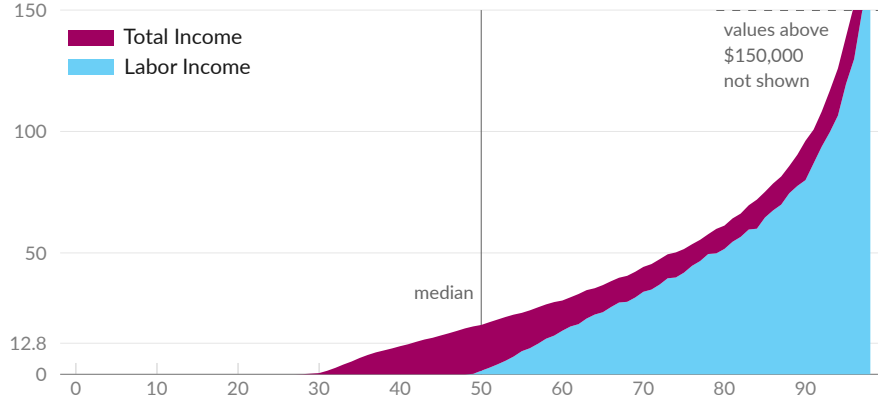
Labor income, which includes wages and salaries as well as self-employment income, is the vast majority of personal income. Over calendar year 2020, 50 percent of people have any labor income (see ■). Only 41 percent of people have labor income above the single-person poverty threshold of $12,760.

Total income, includes after-tax labor income plus welfare and capital income, (see ■) reaches 71 percent of people in 2020. People who did not receive any income by the total income measure typically live with people who receive income.

In 2020, 4.2 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, 2020

by percentile of income, thousands of US dollars



Source: Author's Calculations from CPS ASEC

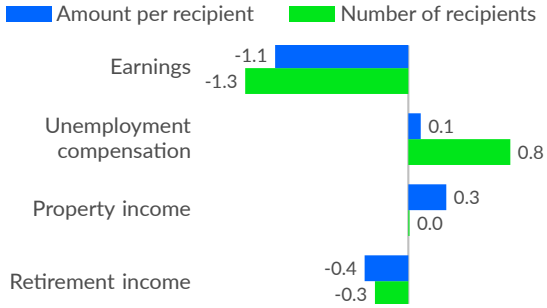
Contributions to Personal Income Growth

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

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

Sources of Personal Income Growth, 2020

percentage point contribution to aggregate growth



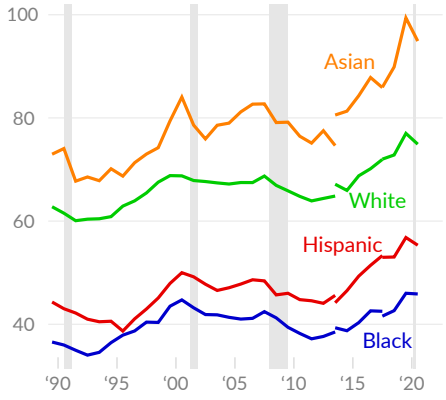
Source: Census Bureau

Household Income

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

Real Median Household Income

thousands of 2020 US dollars



Source: Census Bureau

Black median household income was $45,870 in 2020, compared to an inflation-adjusted equivalent of $46,005 in 2019 (see —). Non-Hispanic white median household income was $74,912 in 2020 and $77,007 in 2019 (see —). Hispanic (any race) median household income was $55,321 in 2020 and $56,814 in 2019 (see —). Asian median household income was $94,903 in 2020 and $99,400 in 2019 (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.

Household Spending and Saving

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

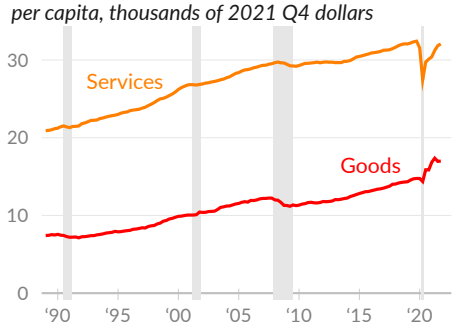
Over the past 30 years, increased consumer spending represents the majority of economic growth. Consumer spending usually increases when households have more income and falls when households have less income. This effect is visible in both the long-run and during the course of a business cycle, with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

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

Spending

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

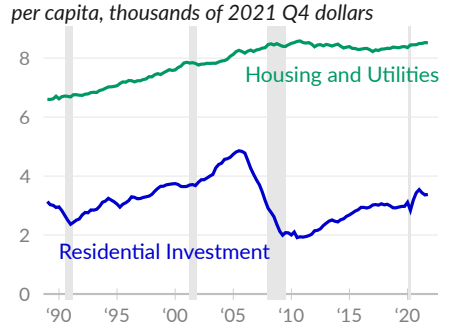
Expenditure Types
per capita, thousands of 2021 Q4 dollars



Source: Bureau of Economic Analysis

Total consumer spending is $16.3 trillion in 2021 Q4, compared to a price-adjusted $16.2 trillion in 2021 Q3 and $15.6 trillion in 2019 Q4. On a per person basis, consumer spending is $49,053 in 2021 Q4, of which $16,991 are spent on goods (see —) and $32,062 on services (see —). In the fourth quarter of 2019, before the pandemic, consumer spending on goods was $14,758 per person, and spending on services was $32,423 per person, after adjusting for inflation.

Shelter Costs
per capita, thousands of 2021 Q4 dollars



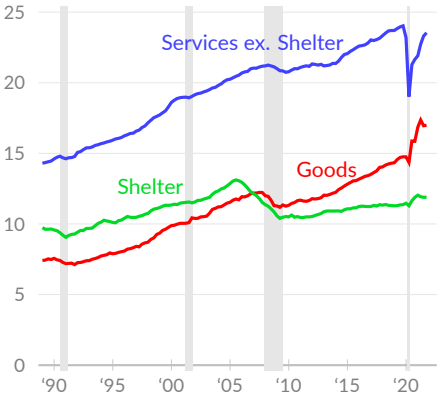
Source: Bureau of Economic Analysis

Within consumer spending on services, housing and utilities spending totals $8,519 on an annualized and per person basis in 2021 Q4 (see —) and $8,392 in 2019 Q4. Construction or improvement of housing is considered residential fixed investment, not consumer spending, but can be combined with spending to analyze patterns in shelter costs. In 2021 Q4, residential investment totals $3,376 per person (see —), compared to $2,974 in the pre-COVID data covering 2019 Q4.

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

Expenditure Types

per capita, thousands of 2021 Q4 dollars



Source: Bureau of Economic Analysis

Consumer spending on services other than housing and utilities totals $23,543 per person, on an annaulized basis, in 2021 Q4 (see —), compared to $23,307 in 2021 Q3, and $24,031 in 2019 Q4. Spending on non-housing services has decreased two percent since 2019 Q4.

Shelter costs, which combine housing, utilities, and residential fixed investment, are $11,896 per person in 2021 Q4 (see —), $11,887 in 2021 Q3, and $11,366 in 2019 Q4. Shelter spending peaked at $13,122 per person in the third quarter of 2005, during the housing bubble.

Expenditure Types

per capita, annualized, 2021 Q4 dollars

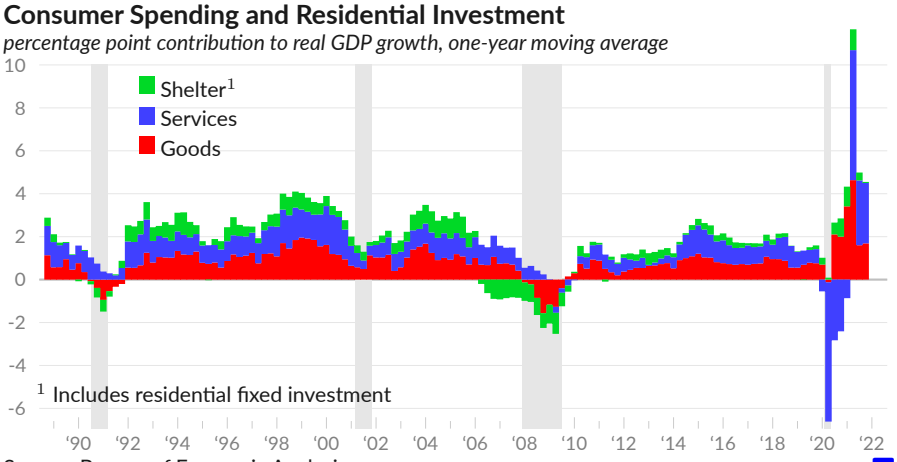
	2021 Q4	2019 Q4	2000 Q1	1989 Q1
Total	$49,053	47,227	35,866	28,021
— Goods	16,991	14,758	9,884	7,416
Motor Vehicles and Parts	2,103	1,992	1,722	1,296
Furniture and HH Equipment	1,426	1,217	588	407
Recreational Durable Goods	1,786	1,295	271	79
Groceries	3,815	3,437	2,931	2,911
Clothes and Shoes	1,448	1,203	889	660
— Services ex. Shelter	23,543	24,031	18,610	14,304
Health Care Services	7,842	7,956	5,277	4,778
Transportation	1,439	1,620	1,420	986
Recreational	1,659	1,913	1,508	1,076
Food and Accommodations	3,331	3,336	2,609	2,396
Financial and Insurance	3,926	3,763	3,812	2,259
— Shelter	11,896	11,366	11,343	9,738
Housing Services and Utilities	8,519	8,392	7,599	6,604
Residential Fixed Investment	3,376	2,974	3,744	3,134

Source: Bureau of Economic Analysis

Next, we examine how changes in consumer spending on goods (see ■), services excluding housing and utilities (see ■), and shelter (see ■, calculated as housing and utilities plus residential fixed investment), affect GDP growth. These categories contributed 1.8 percentage points to GDP growth in 2021 Q4 and contributed 1.4 percentage points in 2021 Q3, compared to an addition of 1.1 percentage points in 2019 Q4, before the pandemic.

Consumer Spending and Residential Investment

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



Source: Bureau of Economic Analysis

In the the fourth quarter of 2021, household spending on goods contributed 0.3 percentage point to GDP growth, household spending on services other than housing and utilities added 1.5 percentage points, and shelter spending and investment contributed 0.1 percentage point.

Consumer Spending and Residential Investment

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

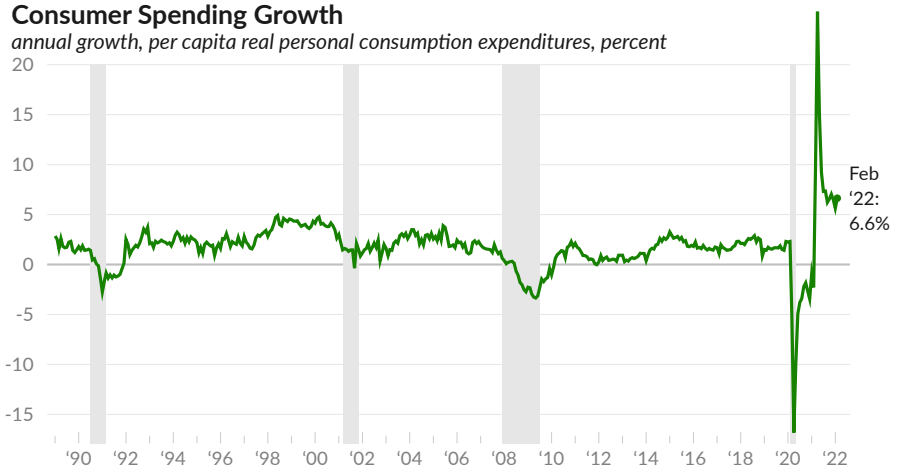
	2021 Q4	'21 Q3	'21 Q2	'21 Q1	'20 Q4	3-year	10-year	30-year
Total	1.76	1.35	7.92	7.44	2.26	1.89	1.71	1.88
■ Goods	0.28	-2.21	2.99	5.69	-0.07	1.40	0.99	0.88
Motor Vehicles and Parts	-0.13	-2.18	0.48	1.36	0.06	0.07	0.12	0.10
Furniture and HH Equipment	-0.09	-0.24	0.00	0.82	-0.12	0.13	0.12	0.10
Recreational Durable Goods	0.30	-0.16	0.29	0.84	0.01	0.33	0.21	0.23
Groceries	-0.05	-0.02	0.18	0.92	-0.18	0.22	0.14	0.10
Clothes and Shoes	-0.05	-0.01	0.66	0.59	0.06	0.16	0.08	0.09
■ Services (ex. Shelter)	1.47	3.38	4.89	1.51	2.30	0.36	0.64	0.80
Health Care Services	0.41	0.53	1.10	-0.50	1.50	0.18	0.28	0.26
Transportation	0.14	0.77	0.73	0.09	0.09	-0.01	0.05	0.06
Recreational	0.33	0.52	0.73	0.49	0.10	-0.06	0.03	0.06
Food and Accommodations	0.12	0.55	2.25	1.13	-0.19	0.10	0.12	0.09
Financial and Insurance	0.38	0.22	-0.17	0.27	0.33	0.09	0.04	0.13
■ Shelter	0.11	-0.19	-0.56	0.84	1.38	0.33	0.28	0.28
Housing Services and Utilities	0.01	0.19	0.04	0.24	0.04	0.13	0.07	0.20
Residential Fixed Investment	0.10	-0.38	-0.60	0.60	1.34	0.20	0.20	0.08

Source: Bureau of Economic Analysis

Consumer spending is also reported on a monthly basis. Inflation- and population-adjusted consumer spending increased 6.6 percent over the year ending February 2022 (see —), far above the previous year rate (a decrease of 2.3 percent over the year ending February 2021).

Consumer Spending Growth

annual growth, per capita real personal consumption expenditures, percent



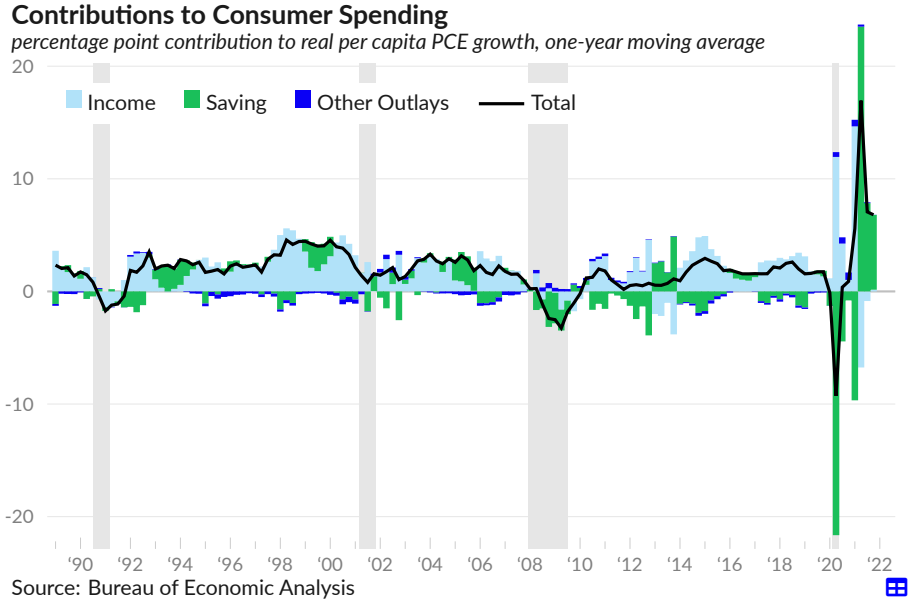
Source: Bureau of Economic Analysis

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 6.8 percent over the four quarters ending 2021 Q4. Changes to disposable income added 0.2 percentage point, changes to saving added 6.6 percentage points, and changes to other outlays didn't affect the total. During 2019, real per capita consumer spending increased at an average rate of 1.7 percent. Increased income contributed 1.9 percentage points, and a slight increase in saving subtracted 0.2 percentage point.

Contributions to Consumer Spending

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



Source: Bureau of Economic Analysis

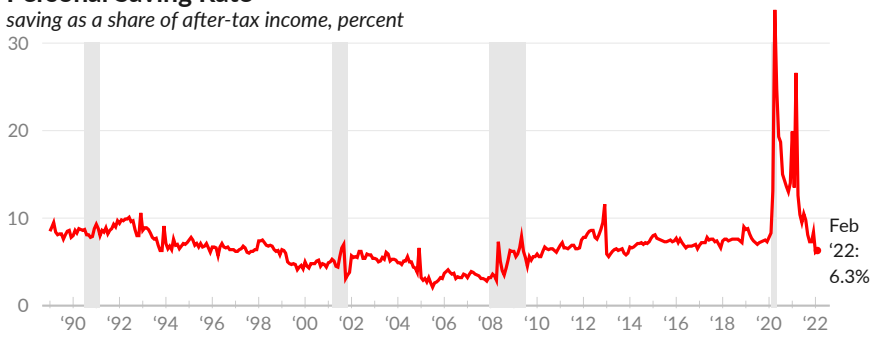
Personal Saving

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 February 2022, the Bureau of Economic Analysis report a personal saving rate of 6.3 percent (see —). The personal saving rate decreased by a total of two percentage points since February 2020.

Personal Saving Rate

saving as a share of after-tax income, percent



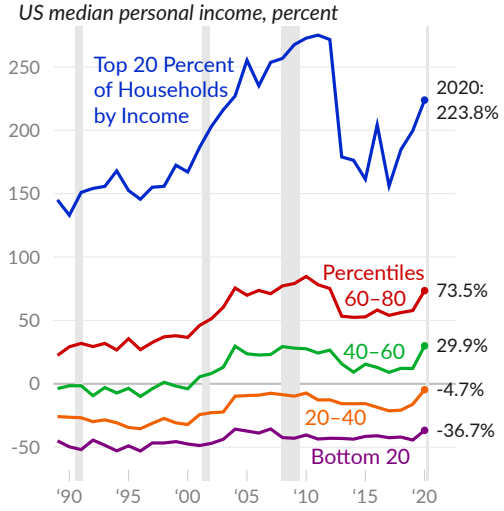
Source: Bureau of Economic Analysis

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 36.7 percent of the US median personal income in 2020 (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 223.8 percent of the median income (see —).

The middle fifth of households by income, percentiles 40–60, saved the equivalent of 29.9 percent of the median income (see —). The fifth of households below the middle group, in percentiles 20–40, did not save in 2020, but dissaved less than previous years (see —).

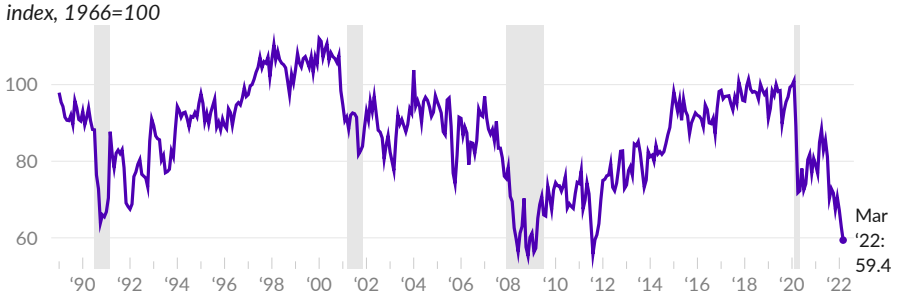
Consumer Sentiment

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 March 2022, the latest value of the consumer sentiment index is 59.4, following 62.8 in February 2022 and compared to 84.9 one year prior, in March 2021. As a pre-COVID baseline, the index average value was 97.3 during the year ending February 2020; the consumer sentiment index is currently 39.0 percent below this level.

Consumer Sentiment

index, 1966=100



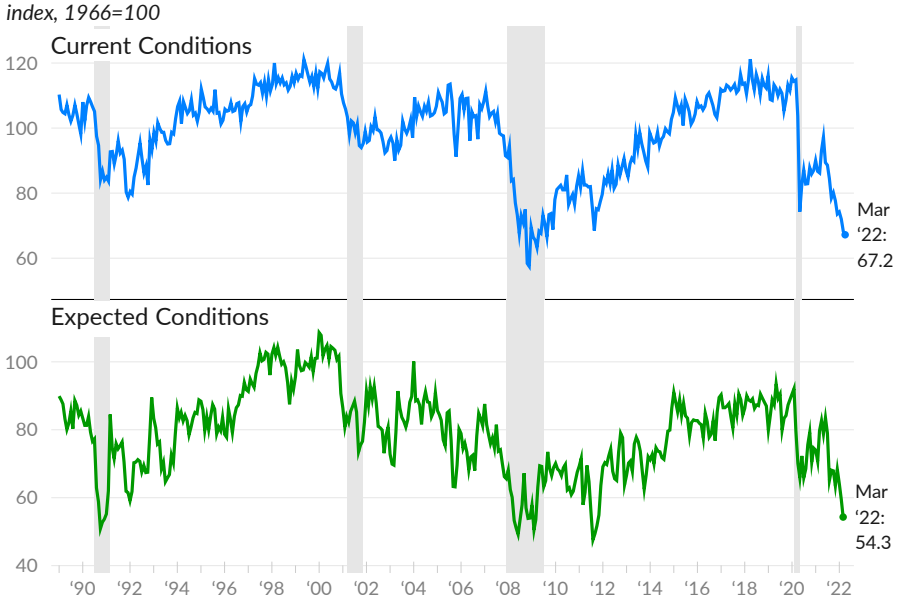
Source: University of Michigan

There are two components to the index of consumer sentiment. The first component tracks views on current economic conditions. In March 2022, the index tracking views on current economic conditions was 67.2, compared to 68.2 in February 2022, and 110.8 in 2019 (see —).

The second component tracks consumer expectations for future economic conditions. In March 2022, the consumer expectations component of the index was 54.3, compared to 59.4 in February 2022, and 86.5 in 2019 (see —).

Consumer Sentiment Index Components

index, 1966=100



Source: University of Michigan

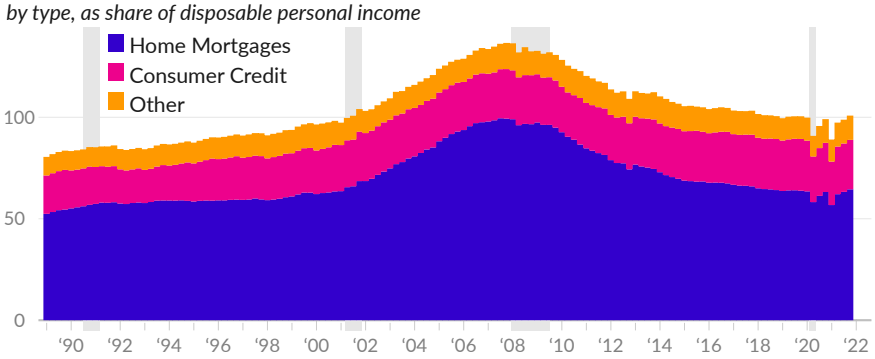
Household Balance Sheets

Liabilities

The Federal Reserve report household and nonprofit liabilities total $18.35 trillion in 2021 Q4. The vast majority–$11.74 trillion or 64.0 percent of the total–are home mortgages (see ■). Consumer credit liabilities (see ■) which include auto loans, credit card debt, student loans, and other personal loans, total $4.43 trillion (24.2 percent of the total). The remaining liabilities (see ■) are primarily attributable to nonprofits.

The ratio of household and nonprofit debt to disposable personal income has fallen to 100.8 percent in 2021 Q4 from its housing-bubble peak of 136.6 percent in 2007 Q4. Over the past three years, nominal household and nonprofit debt has increased 14.7 percent while nominal disposable personal income has increased 14.4 percent. As a result, the ratio of household and nonprofit debt to disposable personal income has been virtually unchanged.

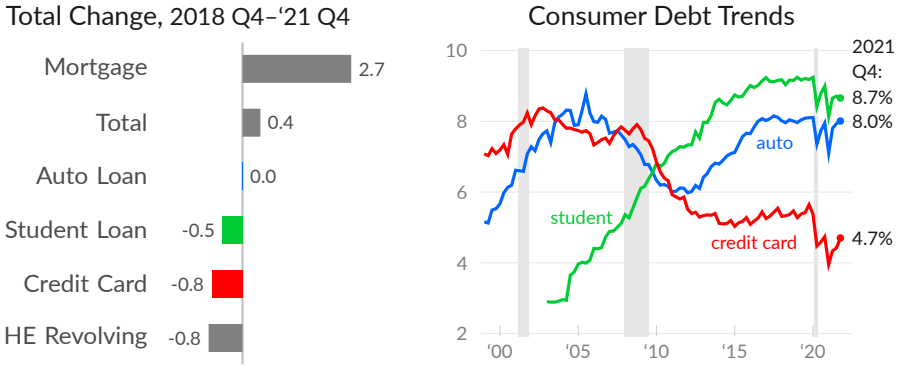
Household and Nonprofit Debt
by type, as share of disposable personal income



Source: Federal Reserve, Bureau of Economic Analysis

Federal Reserve Bank of New York (FRBNY) analysis of Equifax data shows $15.6 trillion in total consumer debt in the fourth quarter of 2021, which is equivalent to 85.6 percent of disposable personal income. Over the past three years, total consumer debt has increased by $2.03 trillion, compared to an increase of $2.29 trillion in disposable personal income. As a result, the ratio of total consumer debt to disposable personal income increased 0.4 percentage point over this period.

Mortgages and Consumer Credit
share of disposable personal income, percent



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

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

According to the FRBNY data, mortgage debt, including home equity lines of credit, was $11.25 trillion in the fourth quarter of 2021, equivalent to 61.8 percent of disposable personal income (DPI). Student loans totalled $1,576 billion, or 8.7 percent of DPI; auto loans totalled $1,458 billion (8.0 percent of DPI); and credit card debt was $856 billion (4.7 percent of DPI).

Over the past three years, the ratio of total mortgage debt to disposable personal income grew by 1.9 percentage points, compared to a decrease of 0.5 percentage point for student loans, virtually no change for auto loans, and a decrease of 0.8 percentage point for credit card debt.

Household Debt Outstanding

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

	2021 Q4	2021 Q3	'21 Q4	'21 Q3	'18 Q4	'13 Q1	'03 Q1
Financial Accounts Total*	$18.35T	$17.97T	100.8	98.8	100.6	112.8	109.3
Mortgage Debt Total	$11.74T	$11.50T	64.5	63.2	64.1	76.7	74.8
Consumer Credit	$4.43T	$4.34T	24.4	23.9	25.2	23.6	24.0
Other	$2.18T	$2.13T	12.0	11.7	11.2	12.5	10.5
Consumer Credit Panel Total	$15.58T	$15.24T	85.6	83.8	85.1	90.8	87.2
Mortgage Debt Total	$11.25T	$10.99T	61.8	60.4	59.9	68.6	62.5
Mortgage	$10.93T	$10.67T	60.0	58.7	57.3	64.1	59.6
Home Equity Revolving	$0.32T	$0.32T	1.7	1.7	2.6	4.5	2.9
Consumer Credit	$4.33T	$4.25T	23.8	23.4	25.2	22.2	24.7
Auto Loan	$1.46T	$1.44T	8.0	7.9	8.0	6.4	7.7
Credit Card	$0.86T	$0.80T	4.7	4.4	5.5	5.3	8.3
Student Loan	$1.58T	$1.58T	8.7	8.7	9.2	8.0	2.9
Other	$0.44T	$0.42T	2.4	2.3	2.6	2.5	5.8

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

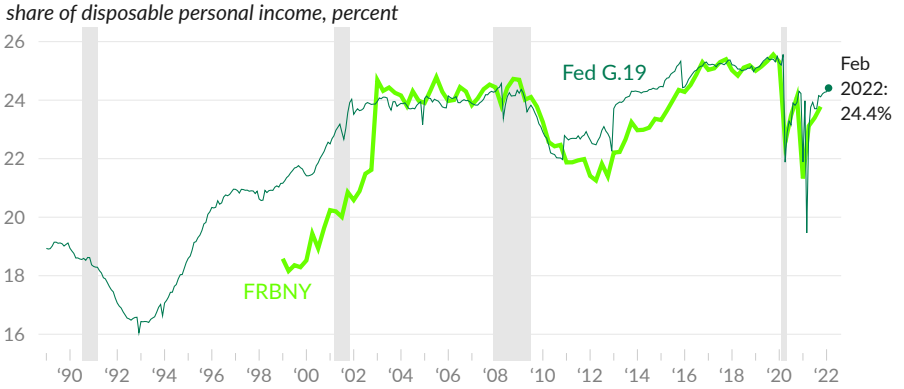
Consumer Credit

The Federal Reserve also report consumer credit on a monthly basis. In the monthly measure, consumer credit totals $4.48 trillion US dollars on a seasonally-adjusted and annualized basis in February 2022. Over the past year, consumer credit increased by 6.5 percent, while after-tax income increased by 4.6 percent. As a result, the ratio of consumer credit to disposable income increased by a total of 0.4 percentage point. In February 2022, total consumer credit is equivalent to 24.4 percent of annualized February 2022 disposable income (see —).

The latest comparable figure from the FRBNY data discussed in the previous section, which covers 2021 Q4, shows consumer credit is equivalent to 23.8 percent of annual disposable personal income (see —). Over the past year, the ratio decreased by a total of 0.3 percentage point.

Consumer Credit

share of disposable personal income, percent



Source: Federal Reserve; FRBNY

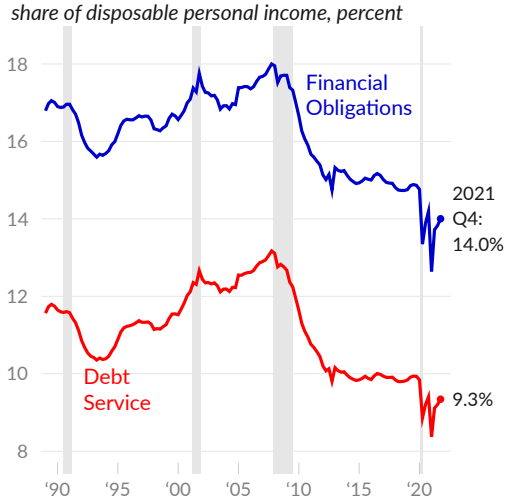
Financial Obligations

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 2021 Q4, the **financial obligations ratio** is 14.0 percent (see —), and the **debt service ratio** is 9.3 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

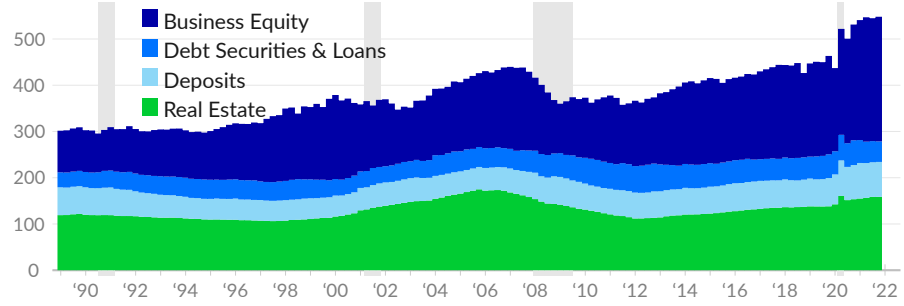
Household and nonprofit assets were valued at $168.6 trillion in 2021 Q4, equivalent to 703 percent–or 7.03 years–of GDP. Of this, $50.4 trillion, or 29.9 percent of the total, are tangible assets and $118.2 trillion, or 70.1 percent, are financial assets.

Tangible, or non-financial, assets include peoples' homes as well as consumer durable goods, such as cars, furniture, and appliances. The market value of owner-occupied real estate is $38.1 trillion in 2021 Q4, equivalent to 1.59 years of GDP (see ■). Consumer durable goods have a replacement value of $7.3 trillion, or 0.3 years of GDP. Tangible assets are reported for the combined household and nonprofit sector and include real estate and equipment belonging to nonprofits, which totals $5.0 trillion in 2021 Q4.

Financial assets include equity in businesses–corporate and non-coporate–with a market value of $64.7 trillion, or 2.7 years of GDP (see ■), in 2021 Q4. Debt securities and loan assets total $10.7 trillion, or 0.44 years of GDP (see ■). Cash and deposits, including money market accounts, total $18.1 trillion, or 0.75 years of GDP (see ■). All other financial assets total $24.8 trillion.

Selected Household and Nonprofit Assets

share of GDP

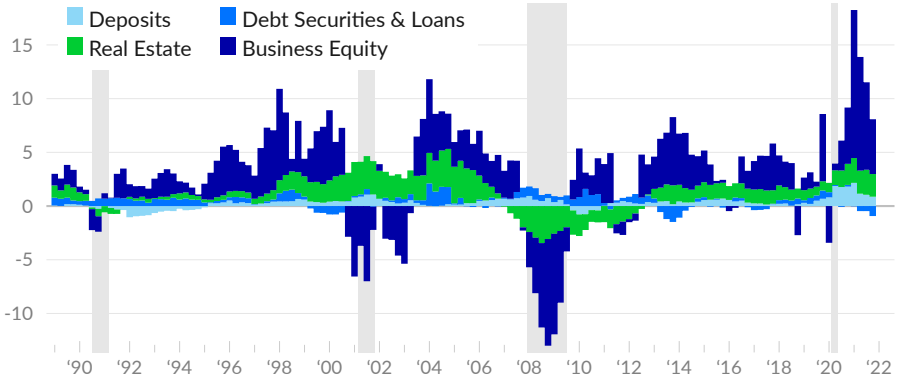


Source: Federal Reserve, Bureau of Economic Analysis

Household and nonprofit assets grew by 7.7 percent over the year ending 2021 Q4. Owner-occupied real estate contributed 2.1 percentage points to total growth, and business equity contributed 5.1 percentage points.

Contributions to Real Growth in Household and Nonprofit Assets

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



Source: Federal Reserve, Bureau of Economic Analysis

Household and Nonprofit Assets

various measures:	*trillions of USD*	*share of GDP*		*real annual growth rate*		
	2021 Q4	2021 Q4	2020 Q4	One-year	Three-year	20-year
Total Assets	$168.6	702.6	691.3	7.7	9.0	3.8
Non-financial assets	50.4	210.1	202.7	9.8	7.1	2.8
Owner-occupied real estate	38.1	158.8	153.6	9.5	7.3	2.9
Consumer durable goods	7.3	30.4	28.3	13.6	6.9	1.9
Nonprofit assets	5.0	21.0	20.8	7.0	6.1	4.1
Financial assets	118.2	492.5	488.6	6.8	9.9	4.3
Deposits, incl. money market	18.1	75.4	73.9	8.2	10.9	4.2
Debt securities and loans	10.7	44.4	53.5	-12.0	-0.7	3.3
Business equity	64.7	269.5	250.3	14.1	16.3	5.3
Corporate equities	49.6	206.5	190.2	15.0	19.6	6.1
Noncorporate business equity	15.1	63.0	60.0	11.2	7.6	3.4

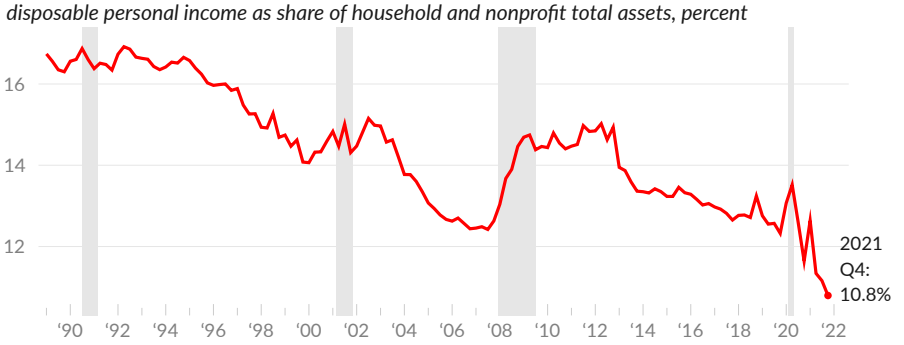
Source: Federal Reserve, Bureau of Economic Analysis

Return on Assets

Asset prices rising faster than income can be viewed as a decrease in the expected rate of return on total household assets. This can be measured by disposable income as a share of household assets. As of 2021 Q4, disposable income was equivalent to 10.8 percent of total assets (see —), compared to an average rate of 16.0 percent during the 1990s.

Return on Household Assets

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



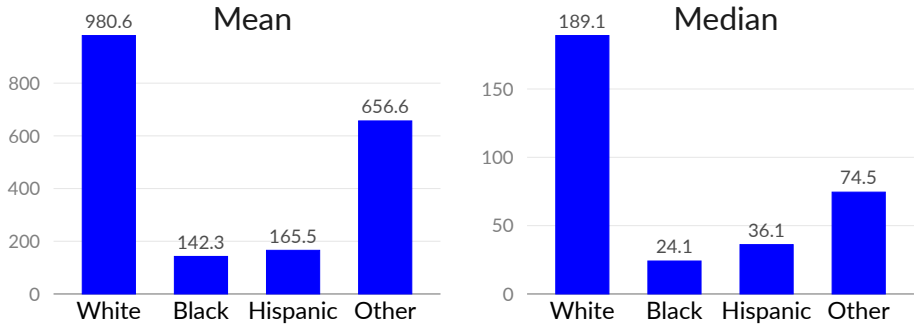
Source: Federal Reserve, Bureau of Economic Analysis

Wealth/Net Worth

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

Racial Wealth Gap

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



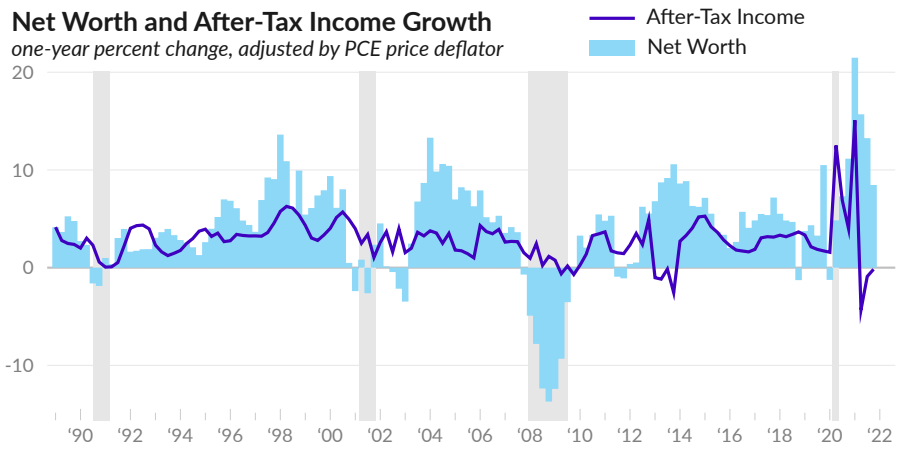
Source: Federal Reserve, Survey of Consumer Finances

The market value of household assets has risen much faster than the total level of household debt, resulting in a substantial increase in aggregate net worth. In 2021 Q4, household and nonprofit institution net worth was $150.3 trillion, equivalent to 8.3 years of disposable personal income; the result of total assets of $168.6 trillion and total liabilities of $18.4 trillion.

In 2021 Q4, inflation-adjusted net worth increased by 8.5 percent (see), and inflation-adjusted after-tax income decreased by 0.2 percent (see —). Over the past three years, real net worth grew at an average rate of 7.8 percent, while real after-tax income grew at an average rate of 3.6 percent

Net Worth and After-Tax Income Growth

one-year percent change, adjusted by PCE price deflator



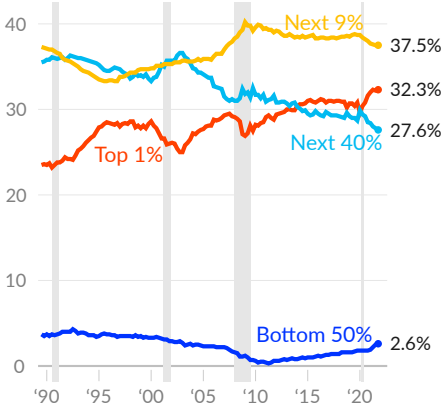
Source: Federal Reserve, Bureau of Economic Analysis

The Federal Reserve report net worth by percentile. The top one percent of households by wealth own 32.3 percent percent of US wealth, as of 2021 Q4 (see —), while the top 10 percent of households own 69.8 percent percent. The bottom half of households own 2.6 percent percent of US wealth (see —).

Since 1989, the wealth share of the top one percent increased 8.7 percentage points, while the share held by the bottom 50 percent decreased one percentage point. The wealth share of the 40 percent of households in wealth percentiles 50 through 90 decreased 7.9 percentage points since 1989.

Share of US Wealth

share of total net worth, by percentile, percent



Source: Federal Reserve

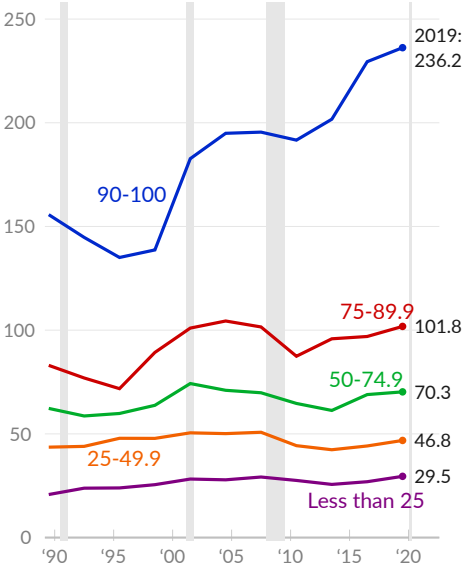
Wealth and Income

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)

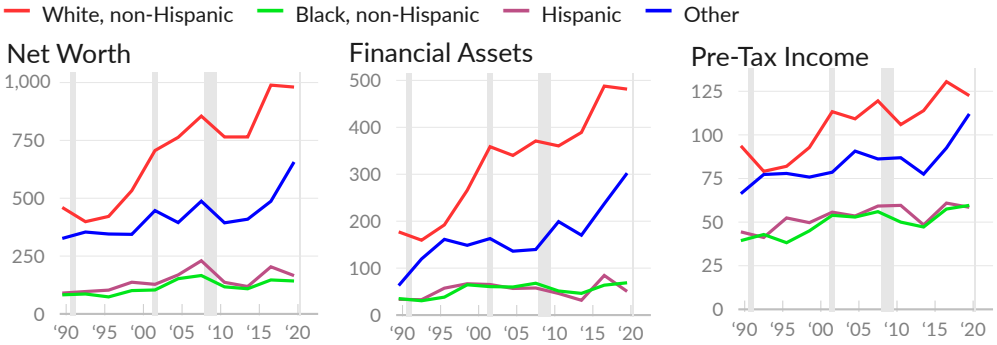
In contrast, families in the third quartile of wealth (50th to 74.9th percentiles, mean wealth of $700,000 in 2019, see —) have a median income of $70,250 in 2019 and $62,277 in 1989, an increase of $7,973 (12.8 percent).

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 bottom quarter of families have a negative mean wealth in 2019 and a median wealth of virtually zero.

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

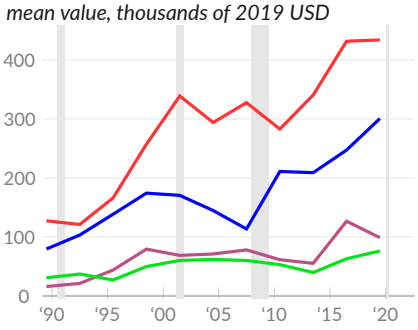
Measures of Wealth and Income by Race or Ethnicity
by family, mean, thousands of 2019 USD



Source: Federal Reserve

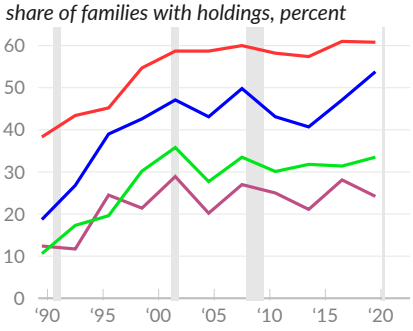
In 2019, among the 60.8 percent of white families who own stocks, the average value of stock holdings is $433,900. The return on these assets is a supplement to labor income and the assets themselves provide cushion against unexpected expenses. Meanwhile, black families have relatively few financial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

Stock Holdings
mean value, thousands of 2019 USD



Source: Federal Reserve

Stock Holdings
share of families with holdings, percent



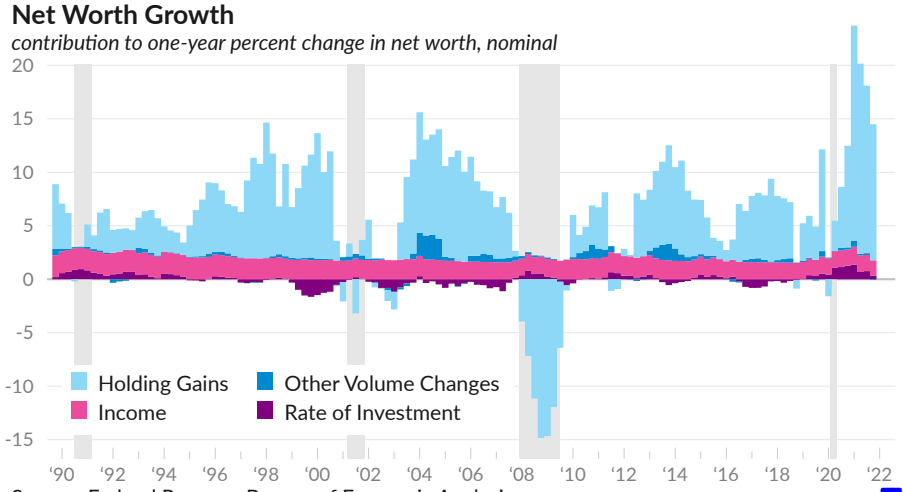
Source: Federal Reserve

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 fourth quarter of 2021, holding gains contributed 12.7 percentage points to the 14.4 percent change in net worth. Income invested at the 1989-onward average rate of 10.2 percent would have contributed 1.4 percentage points; an additional 0.3 percentage points were added as household net investment was 12.6 percent of disposable person income in 2021 Q4. Other volume changes did not contribute.

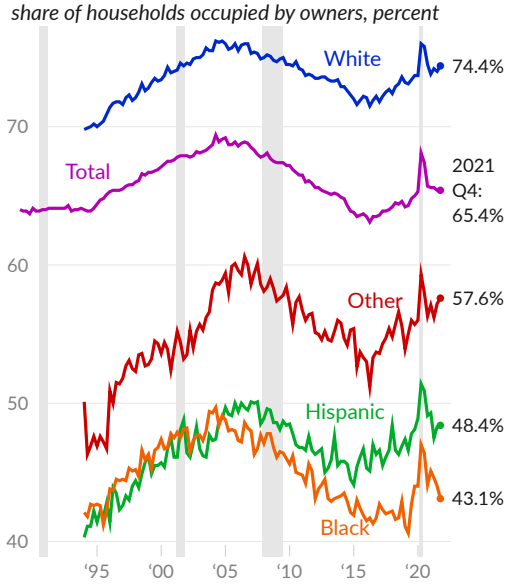
Over the past three years, net worth grew at an average rate of 10.2 percent. Holding gains contributed 7.8 percentage points to this total, on average; net investment of income contributed 2.2 percentage points; and other volume changes contributed 0.2 percentage point.

Homeownership

The **homeownership rate** measures the percent of occupied housing units that are owner-occupied, as opposed to rented. In 2004, near to the peak of the housing bubble, the overall homeownership rate reached 69.2 percent. As of 2021 Q4, the Census Bureau report a homeownership rate of 65.4 percent (see —). Over the past three years, the overall US homeownership rate increased by a total of 0.8 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 (74.4 percent in 2021 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, peaked at 49.7 percentin the second quarter of 2004, and fell to 40.6 percent in 2019 Q2. The current homeownership rate for black households is 43.1 percent, as of 2021 Q4 (see —). The rate for Hispanic households of any race is 48.4 percent in 2021 Q4, substantially below the 51.4 percent peak rate in the second quarter of 2020 (see —).

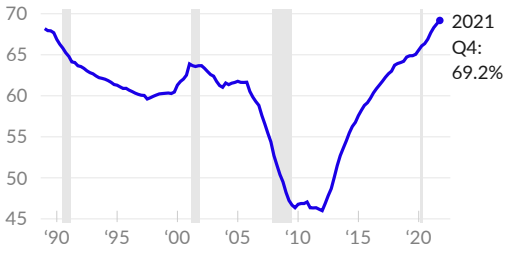
Use caution when interpreting homeownership rates during the COVID-19 pandemic. Individuals who are renters or homeowners are captured by the measure, but when an individual moves in with family and stops being a head of household, they are dropped from the measure. Therefore when renters move in with 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 someone to be a homeowner but have no equity in their home, for example if the market price of the home falls below the principal remaining on the mortgage. Trends in owners' equity as a share of the market value of real estate show substantial improvement since the lows following the collapse of the housing bubble, when millions of homes were in foreclosure.

As of 2021 Q4, the Federal Reserve report **owners' equity** is 69.2 percent of residential real estate (see —). Over the past three years, the owners' equity share increased by a total of five percentage points. Over the past year, the share increased by a total of 2.3 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



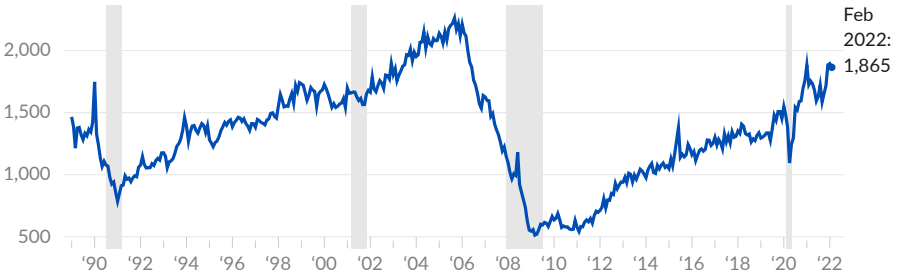
Source: Federal Reserve

Housing Construction

The Census Bureau tracks the issuance of **new residential building permits**, which offer insight into planned residential construction. In February 2022, a seasonally-adjusted annual rate of 1,865,000 new residential housing units were authorized by building permits (see —). Permits issued decreased by 30,000 (-1.6 percent) over the previous month, increased by 139,000 (8.1 percent) over last February, and increased by 625,000 (50.4 percent) total over the past five years.

Residential Construction Permits

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

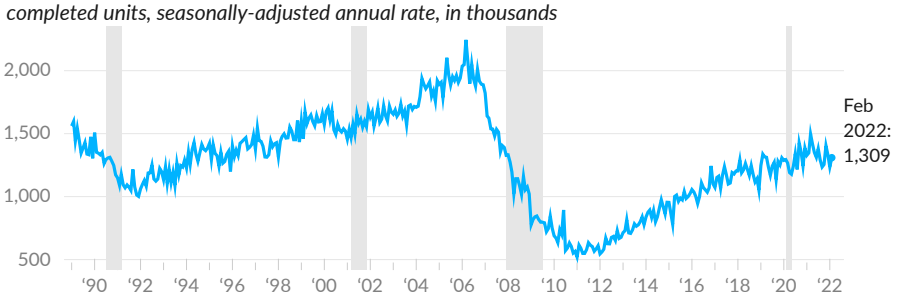


Source: Census Bureau

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 February 2022, a seasonally-adjusted annual rate of 1,309,000 new residential units were completed (see —), compared to 1,236,000 in January and 1,333,000 in February 2021.

Residential Construction Completions

completed units, seasonally-adjusted annual rate, in thousands

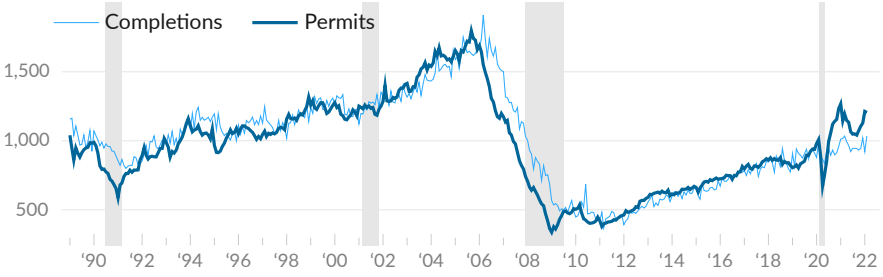


Source: Census Bureau

In February 2022, a seasonally-adjusted annual rate of 1,205,000 new single-family residential units were permitted and 1,034,000 were completed.

Single-family units

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

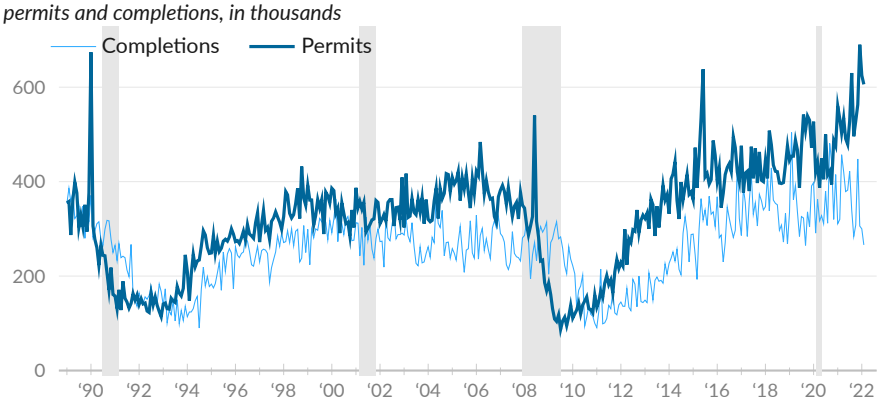


Source: Census Bureau

In February 2022, a seasonally-adjusted annual rate of 606,000 new multi-family residential units were permitted and 266,000 were completed.

Multi-family units

permits and completions, in thousands



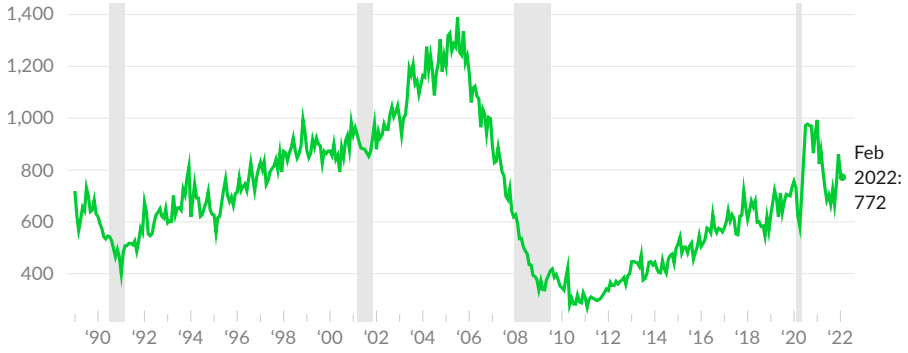
Source: Census Bureau

Housing Sales

In February 2022, the Census Bureau report seasonally-adjusted single family **new homes sales** totaling 772,000 (see —). Over the past year, new homes sales decreased 0.1 percent. Pre-COVID, in February 2020, the annualized rate of single family new home sales was 730,000. Since February 2020, new home sales have increased 5.8 percent.

New Home Sales

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



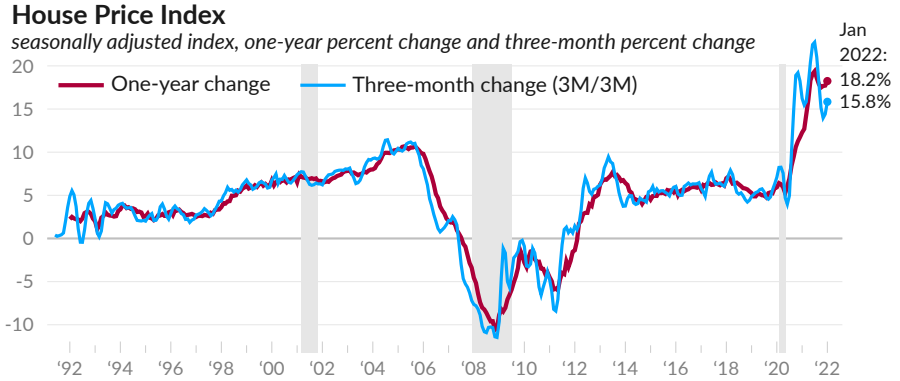
Source: Census Bureau

Housing Prices

The Federal Housing Finance Agency (FHFA) **house price index** measures changes in the price of the same home. The seasonally-adjusted index increased 18.2 percent over the year ending January 2022 (see —). The average of the latest three months of data compared to the previous three months shows an annualized growth rate of 15.8 percent (see —). In December 2021, the one-year growth rate was 17.7 percent and the three-month growth rate was 14.4 percent. Home prices in the Mountain region, which includes Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, and Wyoming, increased 23.1 percent in January 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

	Jan '22	Dec '21	Nov '21	Oct '21	Jan '21	Jan '20	Jan '19	'03–'05 Average	'09–'12 Average
Mountain	23.1	23.3	23.2	23.5	14.9	7.6	7.8	11.1	-4.2
South Atlantic	21.9	20.6	20.6	19.5	12.0	6.6	5.6	11.3	-3.7
East South Central	20.6	18.7	19.8	18.8	11.4	6.4	5.8	5.1	-1.6
Pacific	20.1	19.5	19.2	20.0	13.2	6.2	4.5	18.4	-3.9
West South Central	18.4	18.2	18.5	17.4	10.1	4.6	5.2	4.3	0.3
United States	18.2	17.7	17.7	17.5	12.3	5.9	5.3	9.2	-2.5
New England	15.9	16.9	15.6	15.8	13.7	6.0	4.6	10.3	-2.2
East North Central	14.7	14.2	13.9	14.0	12.2	5.9	4.8	4.3	-2.4
West North Central	14.0	13.9	13.3	13.6	11.4	4.8	4.9	5.4	-1.1
Middle Atlantic	13.3	13.3	13.7	14.2	13.1	4.9	4.6	11.3	-2.3

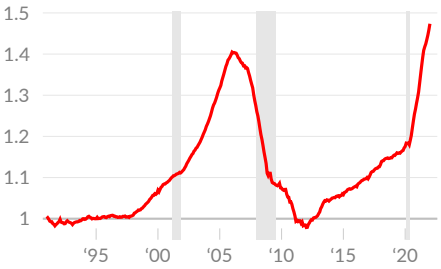
Source: Federal Housing Finance Agency

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 January 2022, housing prices are 47.4 percent above the rental equivalent (see —).

Housing Price to Rent Ratio

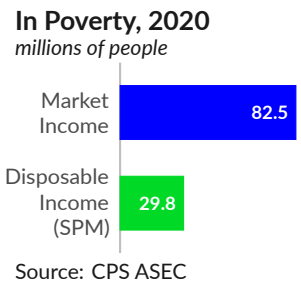
index, 1991=1



Source: FHFA; BLS

Poverty

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

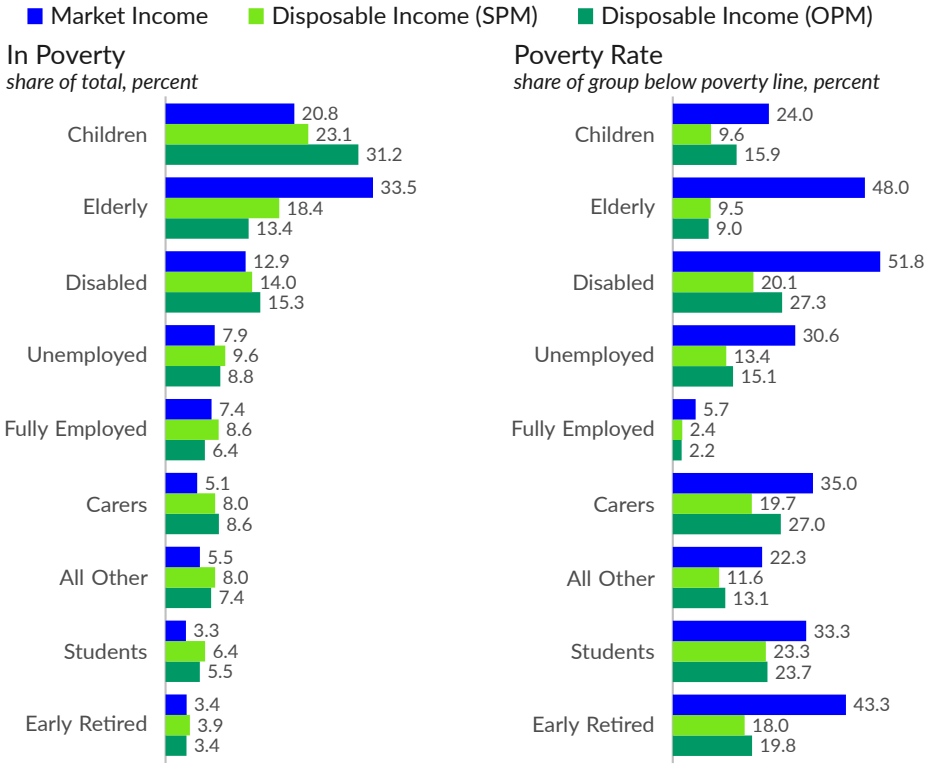


Source: CPS ASEC

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 69.8 percent of those in poverty in 2020. If the missing labor income required to keep a person out of poverty is not supplied in the form of capital income or welfare income, the person will be poverty, by definition. As a result, these groups that are disproportionately work-limited in some way have much higher rates of poverty.

Poverty Measures, 2020



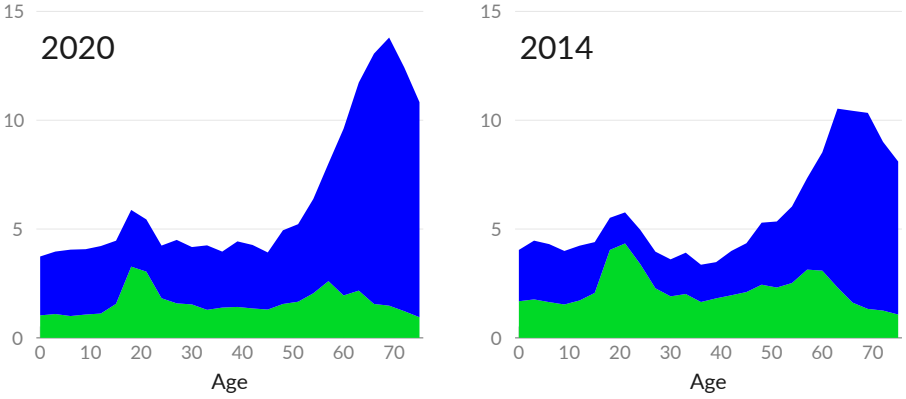
Source: CPS ASEC; Author's Replication of Bruenig, see

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

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

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

in billions of 2020 US dollars

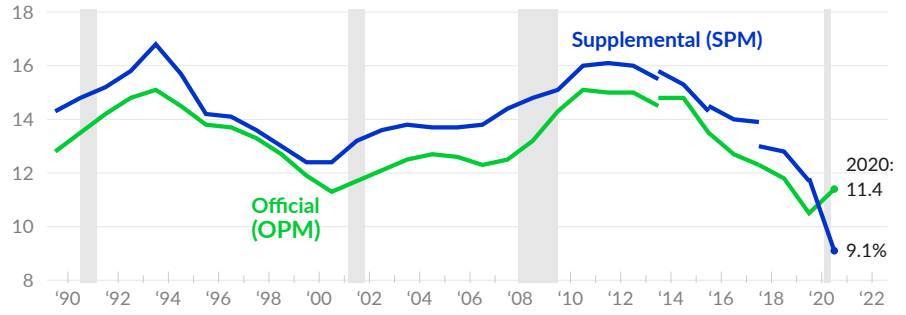


Source: CPS ASEC, 2014 adjusted for inflation with CPI-U-RS

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 12.8 percent during the period. Poverty rates were above average after 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 2020, the supplemental poverty measure fell further, to a new low of 9.1 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

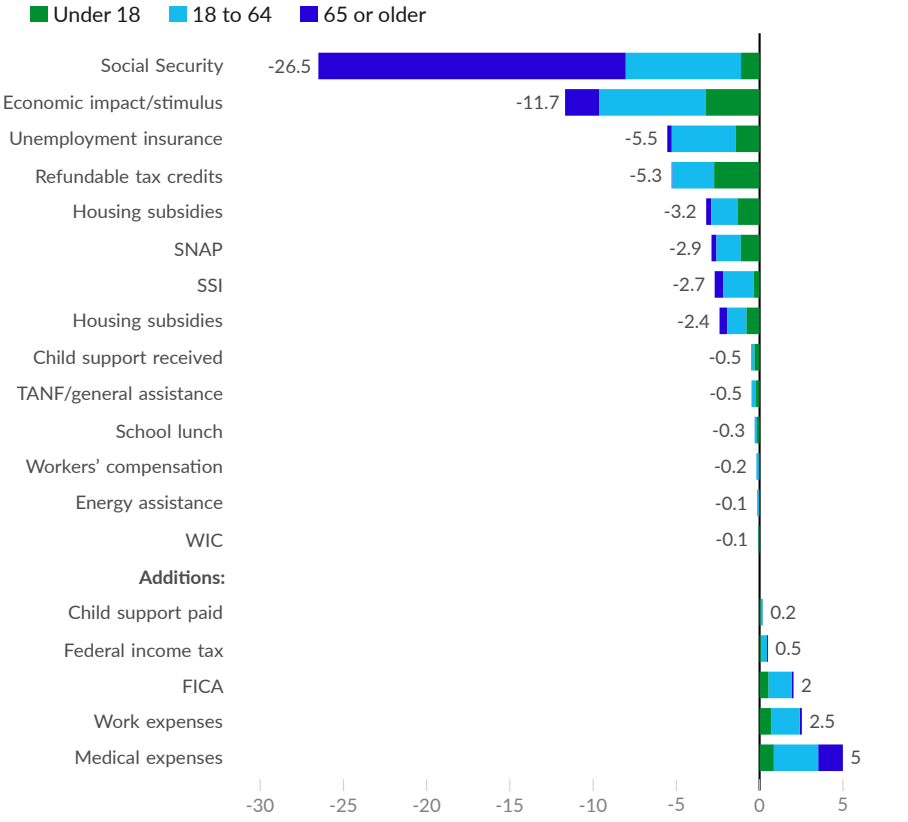
The Census Bureau report **the number of people taken out of poverty by various programs**, along with how many people are put in poverty by various expenses. In 2020, Social Security payments lift income above the poverty line for 26.5 million people, by far the most effective program for reducing poverty.

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



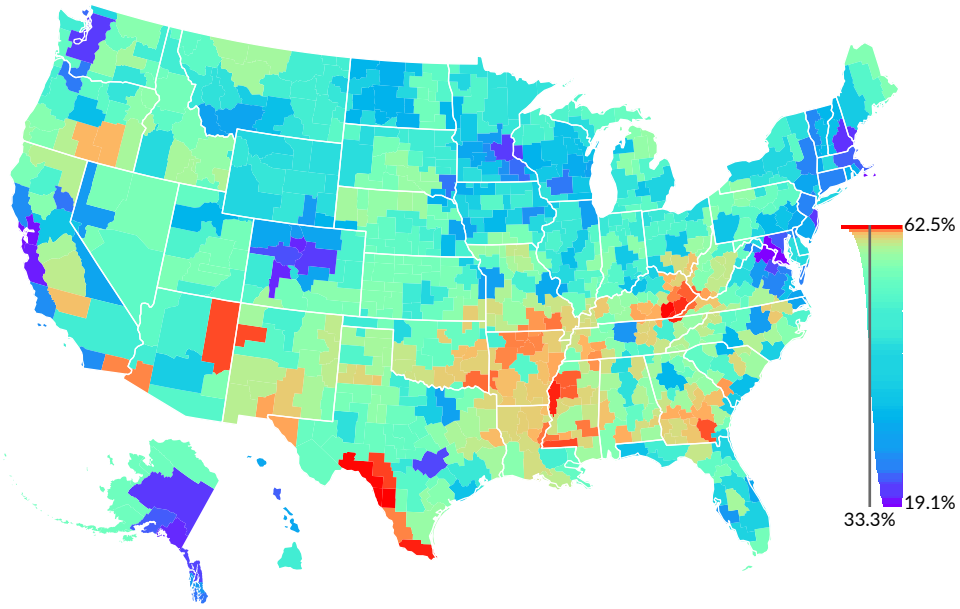
Source: Census Bureau Supplemental Poverty Measure

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 $21,089. 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 3.3 million people, have a majority of the population in bottom third of US income. Among the most extreme examples are Corbin, KY (62.2 percent), Brownsville, TX (60.6 percent), Greenville, MS (60.6 percent), and Gallup, NM (58.4 percent).

Low-Income Share of Commuter Zone, 2020

Share of commuting zone householders with income below $21,089



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.

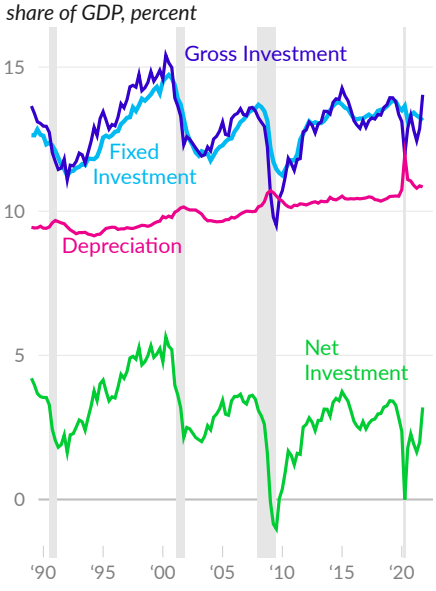
Investment

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 2021, gross private business investment totals $3,369 billion on a seasonally-adjusted annualized basis, equivalent to 14.0 percent of GDP (see —). Private business investment in fixed assets totals $3,155 billion, or 13.1 percent of GDP (see —). Private business depreciation totals $2,603 billion in the quarter, or 10.8 percent of GDP (see —). As a result, net investment is $767 billion, or 3.2 percent of GDP (see —).

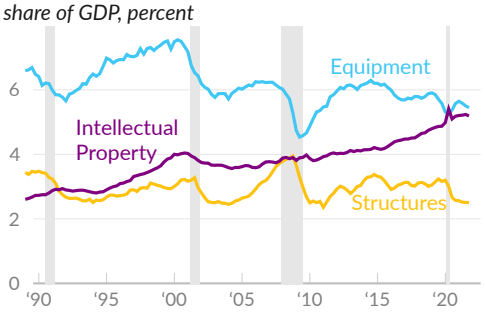
In 2019 Q4, prior to the COVID-19 pandemic, private business gross investment was $2,896 billion. Since 2019 Q4, annualized gross investment increased 16.3 percent. Net investment was $614 billion in 2019 Q4, and increased 24.9 percent from 2019 Q4 to 2021 Q4, as gross investment recovered from its pandemic lows.

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

Business investments in fixed assets are grouped into three categories: structures, equipment, and intellectual property (for example software and R&D). Investment in structures was $601 billion in 2021 Q4, equivalent to 2.5 percent of GDP (see —). Equipment investment was $1,308 billion or 5.4 percent of GDP (see —), and intellectual property investment was $1,246 billion or 5.2 percent of GDP (see —).

Business Fixed Investment by Type

share of GDP, percent



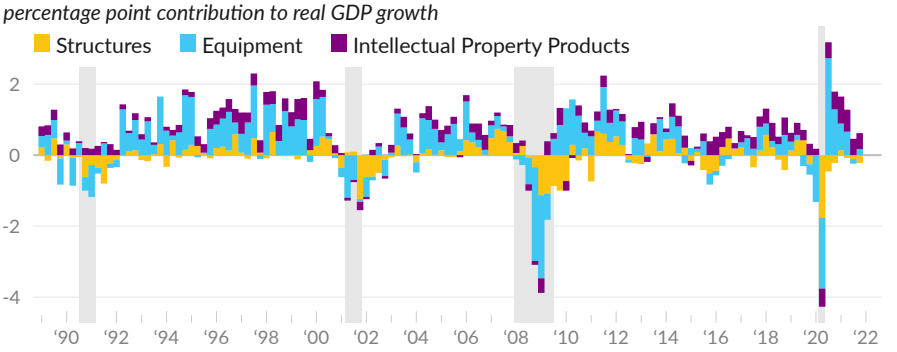
Source: Bureau of Economic Analysis

Contribution to Growth

Business fixed investment contributed 0.40 percentage point to GDP growth in 2021 Q4, in line with the average contribution of 0.36 percentage point over the three years prior to the pandemic. In 2021 Q4, investment in structures subtracted 0.22 percentage point from GDP growth (see ■), investment in equipment contributed 0.17 percentage point (see ■), and investment in intellectual property products contributed 0.45 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*

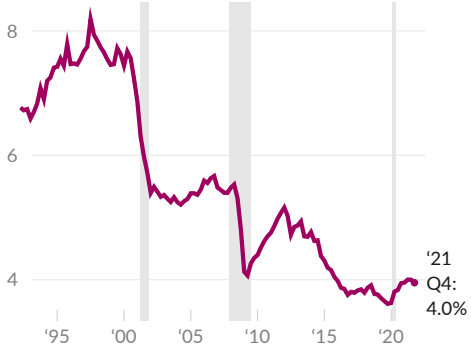
	2021 Q4	'21 Q3	'21 Q2	'21 Q1	'20 Q4	3-year	10-year	30-year
Total	0.40	0.22	1.21	1.65	1.57	0.36	0.53	0.58
■ Structures	-0.22	-0.11	-0.08	0.14	-0.22	-0.19	0.01	0.01
■ Equipment	0.17	-0.13	0.66	0.75	1.29	0.20	0.24	0.34
Information processing	0.52	-0.03	-0.17	0.49	0.31	0.18	0.14	0.22
Computers and peripherals	0.13	0.07	-0.29	0.25	0.11	0.05	0.03	0.12
Industrial equipment	0.17	0.08	0.35	0.08	0.21	0.06	0.04	0.03
Transportation equipment	-0.40	-0.18	0.43	0.08	0.61	-0.09	0.03	0.05
■ Intellectual property products	0.45	0.46	0.62	0.76	0.50	0.35	0.28	0.23
Software	0.12	0.20	0.29	0.52	0.21	0.19	0.16	0.13
Research and development	0.24	0.18	0.28	0.25	0.27	0.16	0.11	0.08

Source: Bureau of Economic Analysis

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

New orders for manufactured core capital goods excluding aircraft totaled $80 billion in February 2022, equivalent to 4.0 percent of GDP (see —). New orders increased 11.0 percent over the past year, and increased by 23.4 percent since February 2020.

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



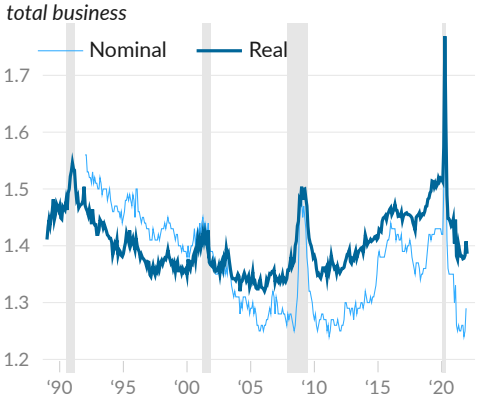
Source: Census Bureau

Inventories

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

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

Inventories to Sales Ratio
total business



Source: FRED, BEA

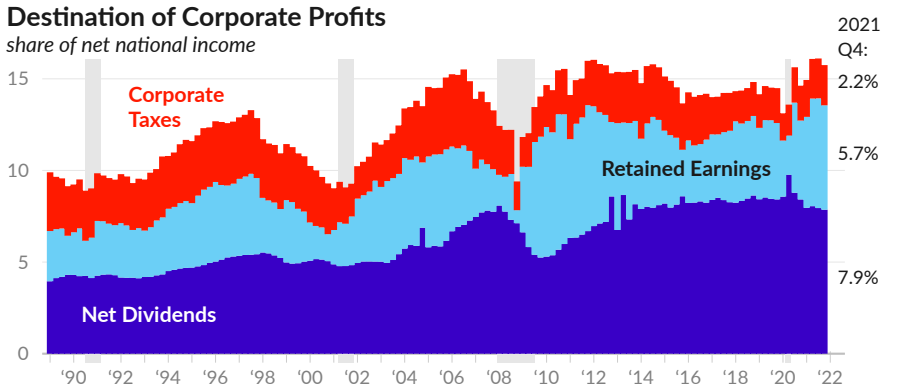
Census report the nominal **ratio of inventories to sales** for the total business sector (see —). In January 2022, the ratio of total business inventories to sales was 1.25, compared to 1.29 in December 2021, 1.30 in January 2021, and 1.42 in February 2020.

The inflation-adjusted version from BEA shows inventories at 1.39 times sales in January 2022, following a ratio of 1.29 in December 2021, and 1.40 one year prior, in January 2021. In 2019, real monthly inventories were 1.51 times real monthly sales, on average.

Corporate Profits

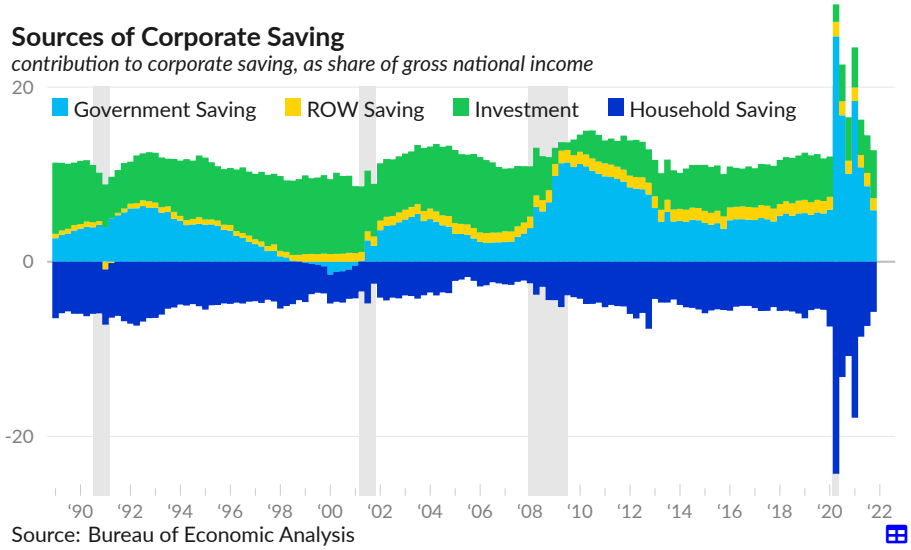
The national accounts include detailed information on **aggregate corporate profits**. In the fourth quarter of 2021, corporate profits were $2.94 trillion, equivalent to 15.7 percent of the income paid to US nationals after depreciation costs (net national income). Of this, $1.47 trillion, equivalent to 7.9 percent of net national income, were paid out as dividends (see ■), $1,062 billion were retained (corporate saving, see ■), and $409 billion, 13.9 percent of corporate profits, went to corporate income tax (see ■).

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



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.



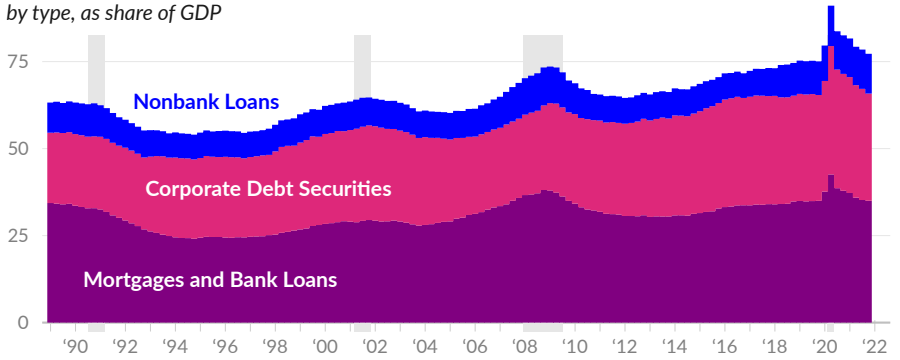
Source: Bureau of Economic Analysis

Business Debt

As of 2021 Q4, nonfinancial business debt–the debt security and loan liabilities of nonfinancial businesses–both corporate and non-corporate–totals $18,541 billion, with $11,650 billion (62.8%) held by corporate businesses. Over the past three years, nonfinancial business debt has increased faster than overall economic activity. As a share of GDP, nonfinancial business debt increased by 2.6 percentage points to 77.2 percent in 2021 Q4 from 74.6 percent in 2018 Q4. The vast majority of the increase, 2.0 percentage points, comes from nonbank loans (see ■).

Nonfinancial Business Debt

by type, as share of GDP



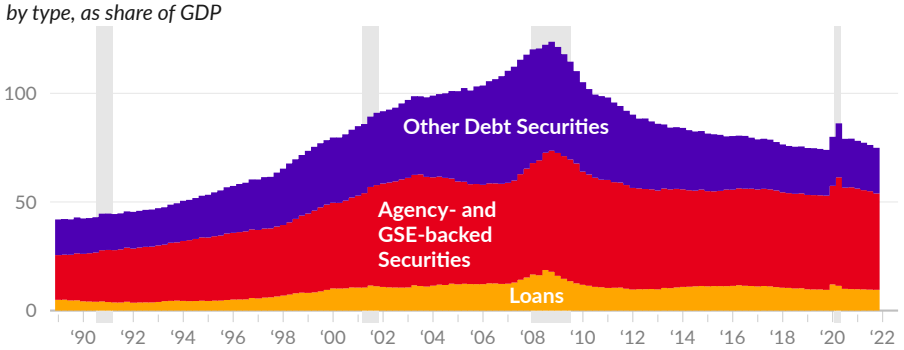
Source: Federal Reserve, Bureau of Economic Analysis

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 74.9 percent in 2021 Q4 from a housing-bubble peak of 123.7 percent in 2008 Q4.

Financial Sector Debt

by type, as share of GDP



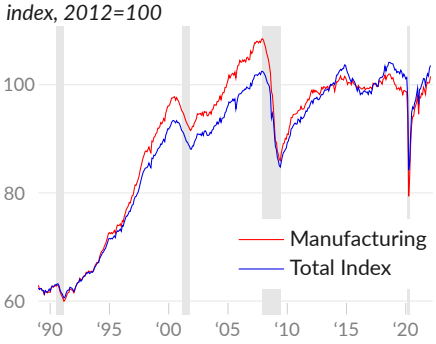
Source: Federal Reserve, Bureau of Economic Analysis

Industrial Production

A monthly index produced by the Federal Reserve shows industrial production increased by 7.5 percent over the year ending February 2022, following an increase of 3.6 percent over the year ending January 2022. One-year growth in manufacturing production was 7.4 percent in February 2022, and manufacturing contributed 5.5 percentage points to the overall change in industrial production. Over the same period, mining contributed 2.4 percentage points to the overall change, and electric and gas utilities subtracted 0.1 percentage point.

By market group, production of consumer goods contributed 0.9 percentage point to one-year industrial production growth in February 2022. Production of business equipment contributed 1.3 percentage points, production of nonindustrial supplies contributed 1.2 percentage points, and production of materials contributed 4.2 percentage points.

Industrial Production
index, 2012=100



Source: Federal Reserve

Industrial Production Growth

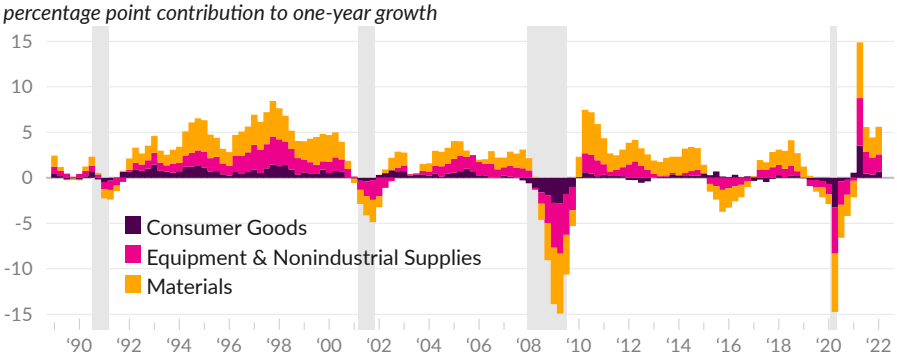
One-year growth	*contribution to total*				*rate, percent*			
	Feb '22	Jan '22	Dec '21	Feb '21	Feb '22	Jan '22	Dec '21	Feb '21
Total index	7.5	3.6	3.4	-4.9	7.5	3.6	3.4	-4.9
Manufacturing	5.5	1.6	2.7	-3.2	7.4	2.2	3.7	-4.2
Durable manufacturing	2.7	1.0	1.8	-1.0	7.2	2.6	4.7	-2.6
Motor vehicles & parts	0.0	-0.3	-0.3	-0.5	0.0	-7.3	-6.5	-10.7
Nondurable manufacturing	2.9	0.7	1.1	-2.0	8.4	2.1	3.0	-5.8
Mining	2.4	1.0	1.2	-2.4	17.3	6.9	8.6	-20.5
Utilities	-0.1	1.1	-0.4	0.9	-1.2	9.0	-3.8	6.7
Consumer goods	0.9	0.5	-0.1	-0.4	3.5	1.7	-0.4	-1.3
Consumer durables	0.2	-0.2	-0.1	-0.2	3.4	-2.6	-1.4	-3.7
Automotive products	0.0	-0.2	-0.2	-0.3	0.1	-7.4	-7.6	-8.2
Consumer nondurables	0.7	0.6	-0.0	-0.1	3.5	2.9	-0.0	-0.6
Foods and tobacco	0.3	-0.1	-0.1	-0.2	3.4	-1.3	-1.0	-1.8
Chemical products	0.3	0.3	0.3	0.0	6.9	5.2	5.7	0.3
Consumer energy products	0.1	0.6	-0.2	0.1	1.5	9.3	-3.3	1.3
Equipment & nonindustrial supplies	2.4	1.3	1.7	-1.2	8.6	4.7	6.2	-4.4
Equipment	1.3	0.7	1.2	-0.4	9.9	5.6	9.1	-2.8
Industrial equipment	0.3	0.2	0.3	-0.1	8.9	5.5	8.9	-2.4
Nonindustrial supplies	1.2	0.6	0.6	-0.9	7.5	3.9	3.8	-5.7
Construction supplies	0.4	0.1	0.3	-0.2	8.8	2.9	5.1	-5.0
Business supplies	0.7	0.5	0.3	-0.6	6.8	4.4	3.1	-6.0
Materials	4.2	1.9	1.8	-3.2	9.4	4.3	4.1	-7.6
Consumer parts	0.0	-0.1	0.0	-0.1	0.8	-2.1	0.1	-1.9
Equipment parts	0.4	0.2	0.3	-0.0	8.3	5.0	7.3	-0.6
Chemical materials	1.2	0.2	0.2	-0.6	23.0	3.1	3.9	-12.5
Energy materials	2.0	1.3	0.9	-1.8	11.2	7.4	5.0	-11.7

Source: Federal Reserve

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

Industrial Production Growth, Market Group

percentage point contribution to one-year growth

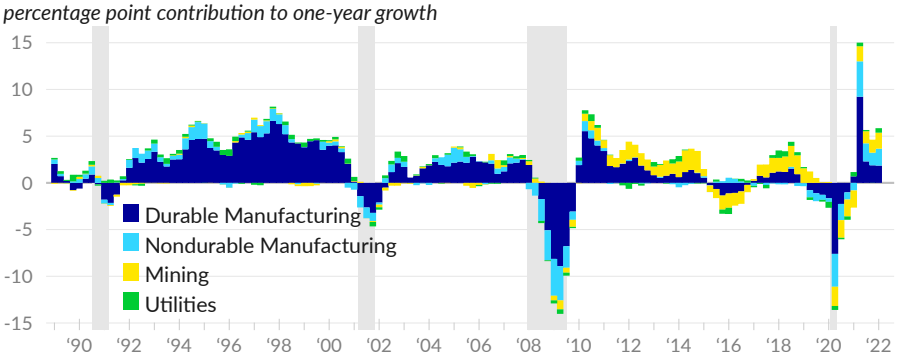


Source: Federal Reserve

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

Industrial Production Growth, Industry Group

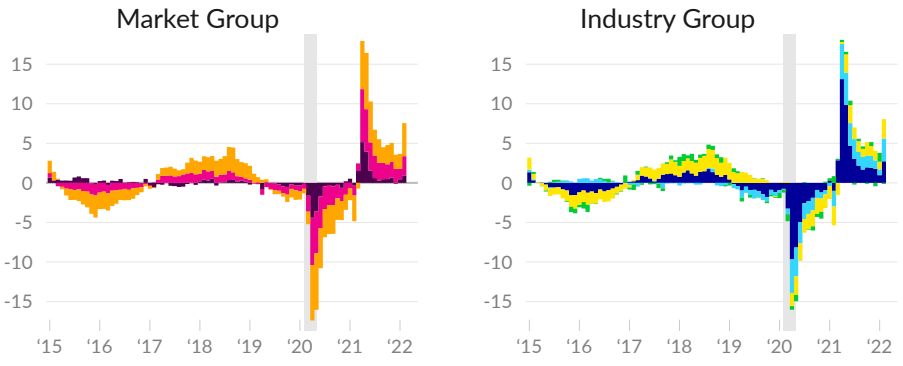
percentage point contribution to one-year growth



Source: Federal Reserve

Production slowed across industry and market groups during the pandemic. Monthly data are shown below.

Recent Data in Detail



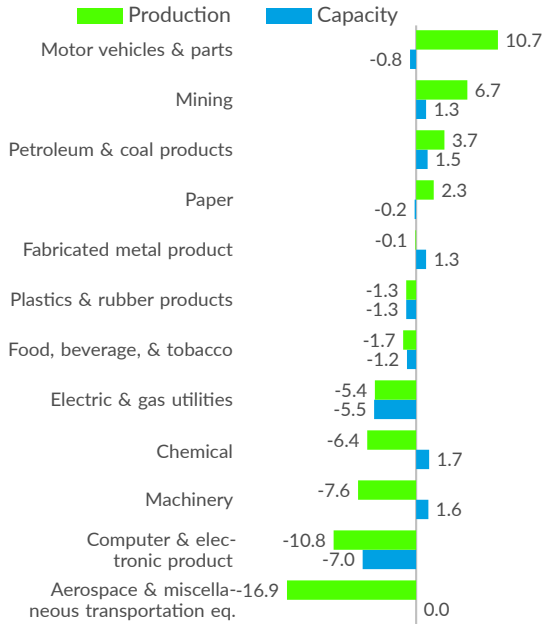
Source: Federal Reserve

As of February 2022, of a subset of 12 industries that contribute the majority of industrial production, four increased **production** since February 2020, eight decreased production, and none were unchanged (see ■). Since February 2020, aerospace & miscellaneous transportation equipment production decreased by 16.9 percent, production of computer & electronic products decreased by 10.8 percent, motor vehicles & parts production increased by 10.7 percent, and machinery production decreased by 7.6 percent.

Since February 2020, five of the 12 industries increased **capacity**, six decreased capacity, and one was unchanged (see ■). Production capacity for computer & electronic products decreased by 7.0 percent, electric & gas utilities capacity decreased by 5.5 percent, and chemical capacity increased by 1.7 percent.

Industrial Production and Capacity

As of February 2022, percent change since February 2020



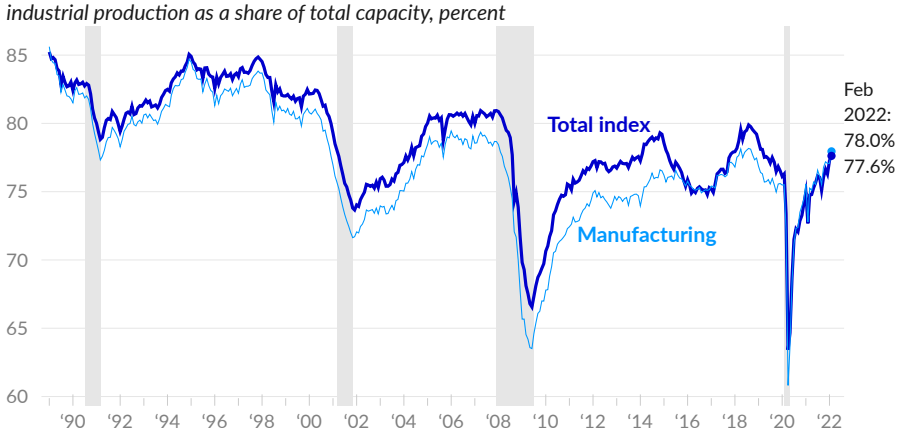
Source: Federal Reserve

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

In February 2022, the industrial capacity utilization rate was 77.6 percent (see —), and the manufacturing capacity utilization rate was 78.0 percent (see —). Total capacity utilization has fallen by 7.6 percentage points since January 1989.

Capacity Utilization

industrial production as a share of total capacity, percent



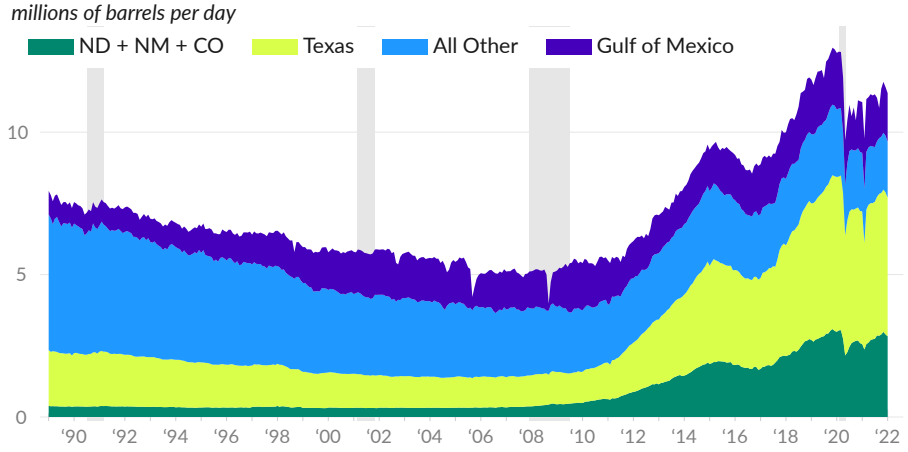
Source: Census Bureau

Energy Production and Use

The Energy Information Administration report a large increase in US **crude oil production**, from around five million barrels per day in 2007 to nearly 13 million barrels per day at the end of 2019. Much of the increase comes from Texas, New Mexico, North Dakota, and Colorado. During January 2022, the US produced 11.4 million barrels per day.

Crude Oil Production

millions of barrels per day

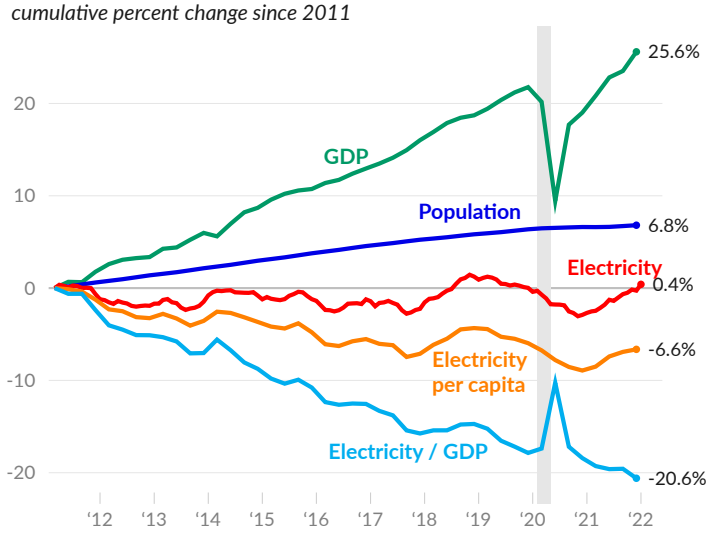


Source: Energy Information Administration

Since 2011, annualized total US **electricity generation** has remained fairly constant at around four trillion kilowatt hours. Over the same period, the US population has increased by 6.8 percent (see —) and real GDP has increased by 25.6 percent (see —). As a result, the electricity required to produce a unit of real GDP decreased by 20.6 percent (see —).

Electricity Generation, Population, and Production

cumulative percent change since 2011

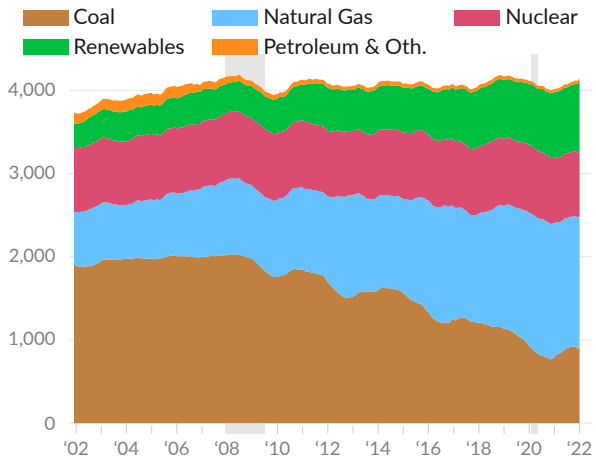


Source: EIA, BEA

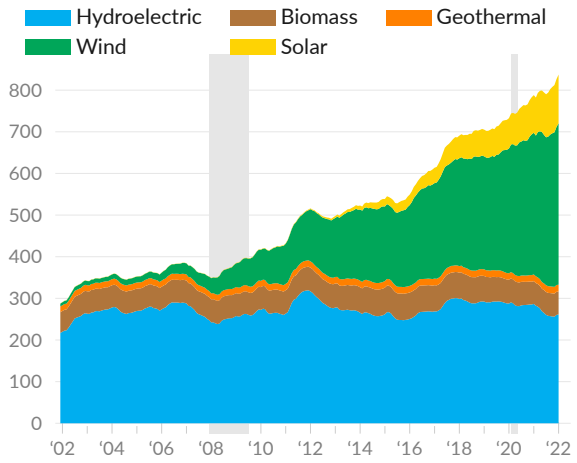
During the 12 months ending January 2022, the US generated 4,144 billion kilowatt hours of electricity. Of this, 1,586 billion kilowatt hours were generated using natural gas (see), 905 billion kilowatt hours were generated from coal (see), 777 billion from nuclear (see), and 837 billion from renewable sources (see).

Electricity Generation by Source

billion kilowatt hours, 12-month moving sum



Renewable Sources



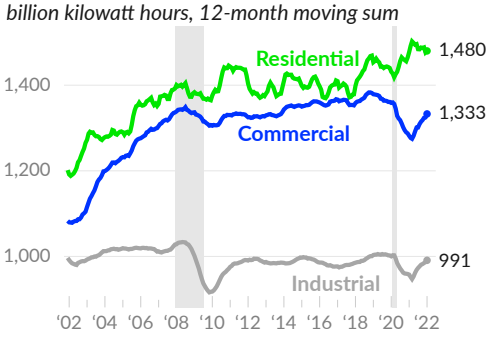
Source: Energy Information Administration

Among renewable energy sources, over the year ending January 2022, 261 billion kilowatt hours of electricity were generated with conventional hydroelectric (see), 55 billion kilowatt hours were generated from biomass (see), 16 billion were generated from geothermal (see), 388 billion from wind (see), and 117 billion from solar (see).

The Energy Information Administration report the **retail sales of electricity** to each major sector. These data show a decrease in electricity sales to commercial and industrial sectors during the pandemic, offset in part by increased electricity sales to the residential sector.

Electricity Retail Sales by Sector

billion kilowatt hours, 12-month moving sum



Source: Energy Information Administration

Over the year ending January 2022, retail sales of electricity to the residential sector total 1,480 billion kilowatt hours, compared to 1,440 billion during 2019 (see —). Commercial sector electricity sales total 1,333 billion kilowatt hours over the year ending January 2022, and 1,361 billion kilowatt hours in 2019 (see —). Industrial sector sales total 991 billion kilowatt hours in the latest 12 months of data and 1,002 billion kilowatt hours in 2019 (see —).

Retail Sales

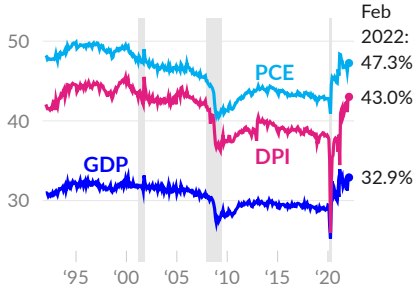
The Census Bureau report the monthly sales of retail businesses, restaurants, and bars. These retail trade figures can be a useful economic indicator. Retail trade includes brick and mortar stores as well as e-commerce and other nonstore sales to the general public.

In February 2022, **retail and food services sales** total $658.1 billion. On an annualized basis, this is equivalent to 43.0 percent of disposable (after-tax) income (see —), 47.3 percent of consumer spending (see —), and 32.9 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.

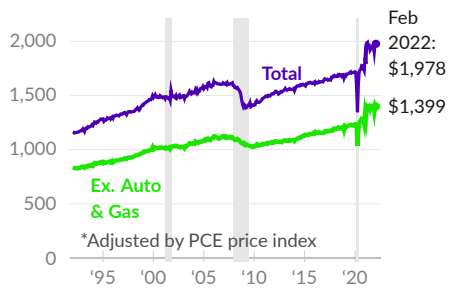
Retail and food service sales, **adjusted for population growth and inflation**, provide additional context on economic developments. Per capita retail and food services sales, adjusted by the personal consumption expenditure (PCE) price index, are $1,978 during February 2022 (see —). Prior to the pandemic, in 2019, real per capita retail and food service sales averaged $1,703 per month. Excluding automotive and gasoline sales, per capita sales were $1,399 in February 2022 and $1,221 per month in 2019, after adjusting for inflation (see —).

Retail and Food Services Sales

share of aggregate measure, percent



real, per capita, monthly, February 2022 dollars*

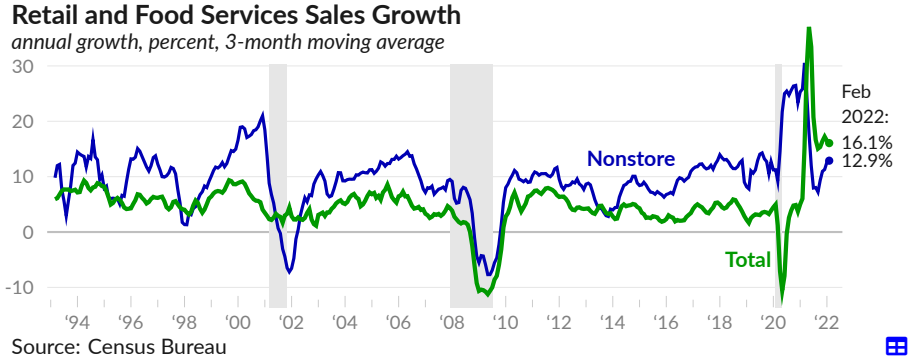


Source: Bureau of Labor Statistics

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 17.6 percent over the year ending February 2022. The three-month moving average growth rate was 16.1 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 12.9 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.

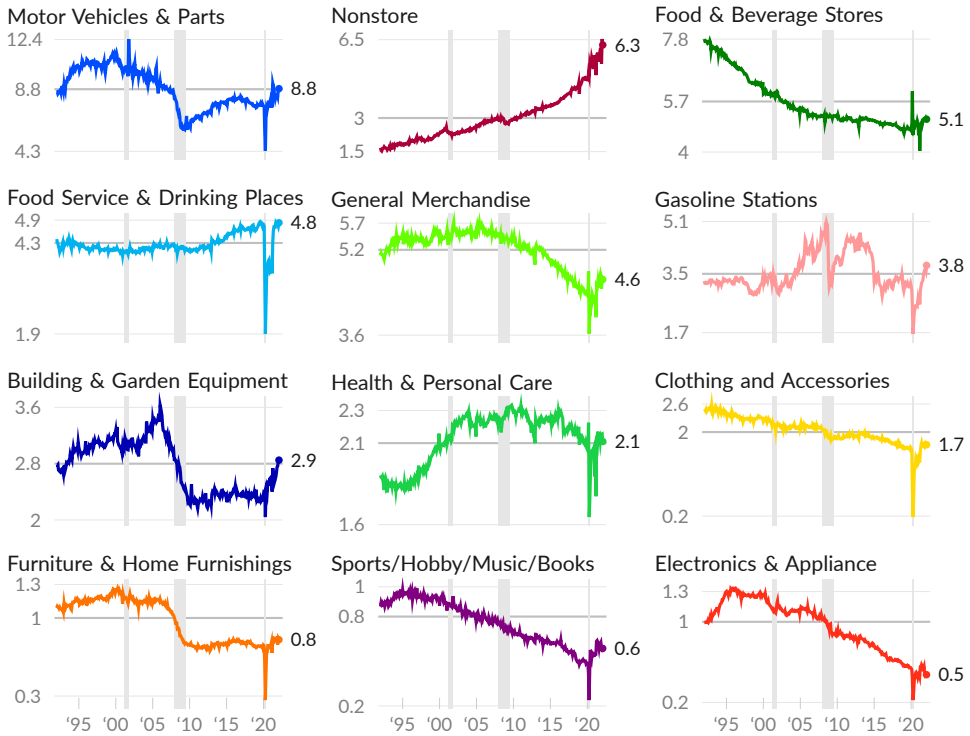
Nonstore sales were 1.7 percent of after-tax income in January 1992 and 6.3 percent in February 2022, a shift that is equivalent to $844 billion per year. Since 1992, sales as a share of after-tax income has decreased in food and beverage stores (-2.7 percentage points), clothing and accessories stores (-0.8 percentage points), and electronics and appliance stores (-0.5 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 through January 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.

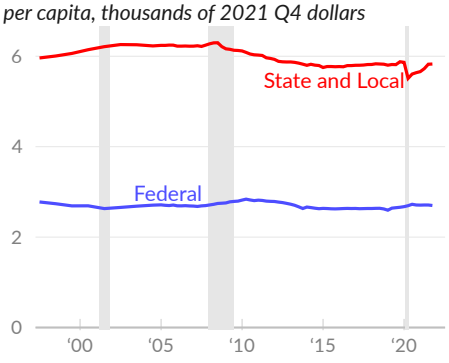
This chartbook section covers various government statistics, including contributions to current economic activity, receipts and expenditures, assets and liabilities, and government jobs.

Current Economic Activity

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

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

Value Added in Domestic Production
per capita, thousands of 2021 Q4 dollars



Source: Bureau of Economic Analysis

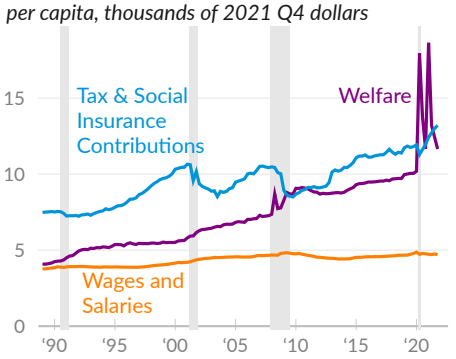
In the fourth quarter of 2021, the federal government value added in domestic production is $897.8 billion, equivalent to $2,699 per capita (see —). In 2019 Q4, federal government value added in production was equivalent to $2,660 per capita, after adjusting for inflation.

State and local government value added in domestic production is $1,938.4 billion in 2021 Q4 and $1,840.0 billion in 2019 Q4, equivalent to $5,828 and $5,878 per capita, respectively (see —).

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

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

Personal Income and Outlays
per capita, thousands of 2021 Q4 dollars



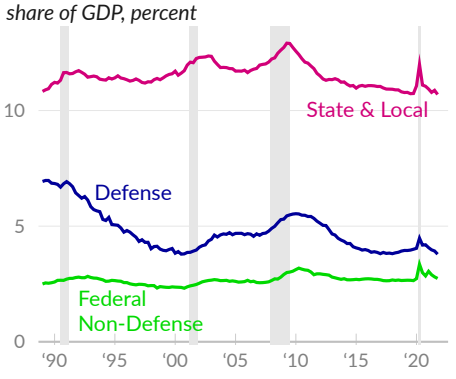
Source: Bureau of Economic Analysis

In 2021 Q4, government worker wages and salaries, not including benefits, were equivalent to $4,708 per capita, following a price-adjusted $4,781 in 2019 Q4 (see —). Welfare payments were equivalent to $11,653 per capita in 2021 Q4, compared to $10,049 per capita in 2019 Q4 (see —). In 1989 Q1, welfare payments were equivalent to $4,080 per person.

Personal current taxes and social insurance contributions total $13,206 per capita in 2021 Q4, $11,812 in 2019 Q4, and $7,474 in 1989 (see —).

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

Consumption and Investment
share of GDP, percent



Source: Bureau of Economic Analysis

In 2021 Q4, federal non-defense spending and investment was $657.1 billion, equivalent to 2.7 percent of GDP (see —), compared to 2.6 percent of GDP in 2019 Q4. Federal spending on national defense was equivalent to 3.8 percent of GDP in the latest quarter and 4.0 percent in 2019 Q4 (see —). National defense spending was 6.9 percent of GDP in 1989 Q1.

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

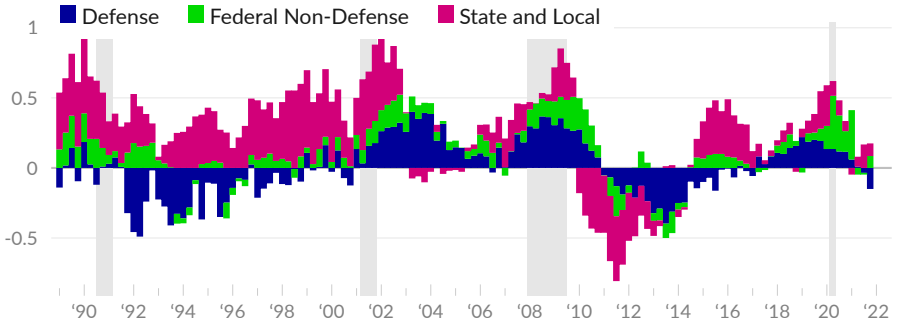
Government Consumption and Investment

Government consumption and investment directly affect economic growth in the short-term. In the fourth quarter of 2021, government consumption spending and investment subtracted 0.46 percentage point from the real GDP growth rate of 6.9 percent. Over the latest four quarters, government consumption and investment contributed 0.03 percentage point to economic growth, on average. Since 1989, the average contribution has been 0.23 percentage points.

Over the four quarters ending 2021 Q4, by level of government, national defense subtracted 0.15 percentage point (see ■), other federal government contributed 0.08 percentage point (see ■), and state and local government contributed 0.09 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*

	2021 Q4	'21 Q3	'21 Q2	'21 Q1	'20 Q4	3-year	10-year	30-year
Total	-0.46	0.17	-0.36	0.77	-0.09	0.27	0.11	0.21
Federal total	-0.29	-0.35	-0.38	0.78	-0.22	0.16	0.01	0.07
■ National defense	-0.24	-0.07	-0.04	-0.25	0.22	0.07	-0.04	0.01
Consumption expenditures	-0.21	-0.16	-0.09	-0.28	0.12	0.02	-0.04	0.00
Gross investment	-0.03	0.09	0.05	0.03	0.10	0.05	0.00	0.01
■ Nondefense	-0.05	-0.29	-0.34	1.02	-0.44	0.09	0.05	0.06
Consumption expenditures	-0.08	-0.33	-0.35	1.07	-0.34	0.07	0.04	0.04
Gross investment	0.02	0.04	0.01	-0.05	-0.10	0.02	0.01	0.02
■ State & local total	-0.17	0.52	0.02	-0.01	0.14	0.11	0.09	0.14
Consumption expenditures	-0.03	0.60	0.28	0.22	-0.05	0.13	0.09	0.12
Gross investment	-0.14	-0.08	-0.26	-0.23	0.19	-0.02	0.00	0.02

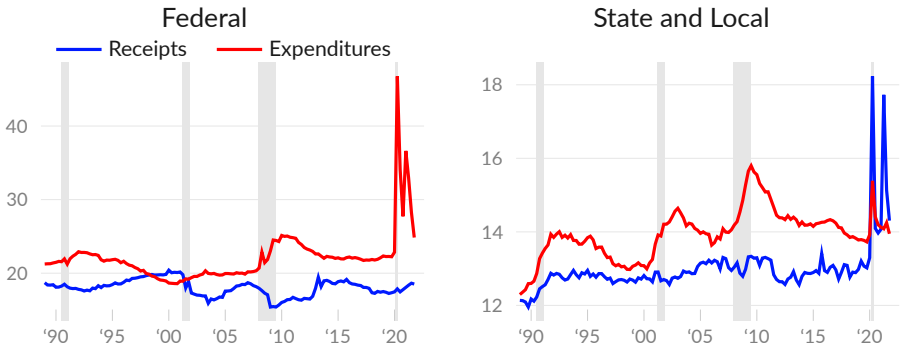
Source: Bureau of Economic Analysis

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 $6.0 trillion, or 24.8 percent of GDP, in 2021 Q4. Receipts for the same period total $4.4 trillion or 18.5 percent of GDP. In 2021 Q4, the federal government deficit was $1,517 billion or 6.3 percent of GDP.

Combined state and local government expenditures total $3.3 trillion, or 13.9 percent of GDP, in 2021 Q4. Receipts for the same period total $3.4 trillion or 14.3 percent of GDP. In 2021 Q4, the combined state and local government surplus was $86 billion or 0.4 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 February 2022, **Federal government receipts** total $4.4 trillion, of which $2.3 trillion are from individual income taxes (see —). The remaining receipts (see —) are largely social insurance contributions ($1.4 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.

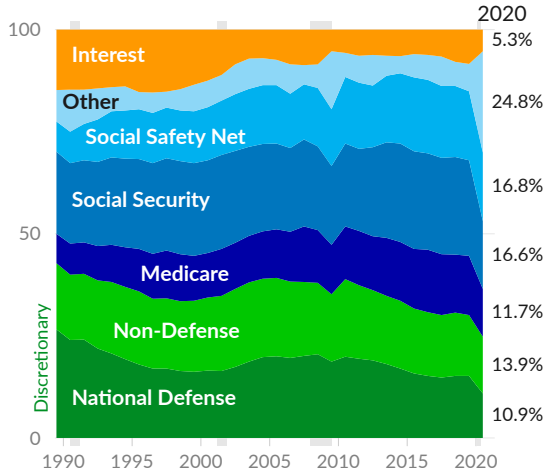
Over the long-term, Office of Management and Budget (OMB) data show national defense spending fell to 15.2 percent of outlays in 2019 from 26.6 percent in 1989 (see ■). Discretionary non-defense spending maintained a relative stable share of spending over the period (see ■). Net interest expense, the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

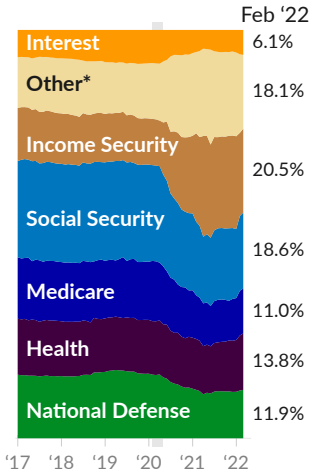
share of total, percent

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 20.5 percent of federal spending over the 12 months ending February 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 19.2 percent of federal spending during the 12 months ending February 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

	Feb 2022	Jan 2022	Dec 2021	Mar 2021	2019	2017
Income Security	22.5	22.3	24.3	26.0	11.8	12.8
Health	13.0	12.7	12.2	10.9	12.8	13.4
Medicare	10.6	10.5	10.1	10.4	14.7	15.0
Social Security	17.5	17.3	16.3	14.7	23.6	23.8
National Defense	11.4	11.3	11.0	9.7	16.0	15.2
Net Interest	5.8	5.6	5.3	4.1	8.3	6.6
Other:	19.2	20.3	20.8	24.2	12.8	13.1
Administration of Justice	1.1	1.1	1.0	1.0	1.5	1.5
Agriculture	0.5	0.5	0.5	0.7	0.8	0.5
Commerce & Housing Credit	3.2	4.5	4.4	9.8	-0.5	-0.8
Community & Regional Development	0.8	0.7	0.7	1.3	0.7	0.7
Educ., Training, Employment, & Social Serv.	4.9	4.8	4.6	3.2	2.7	3.2
Energy	0.1	0.1	0.1	0.1	0.1	0.1
General Government	4.0	4.0	3.9	2.4	0.4	0.5
General Science, Space, & Technology	0.5	0.5	0.5	0.5	0.7	0.8
International Affairs	0.7	0.8	0.7	0.9	1.2	1.2
Natural Resources & Environment	0.6	0.6	0.6	0.5	0.8	0.9
Transportation	2.2	2.3	2.2	2.2	2.2	2.4
Undistributed Offsetting Receipts	-3.1	-3.1	-1.9	-1.5	-2.3	-2.3
Veterans Benefits & Services	3.7	3.6	3.5	3.0	4.5	4.4

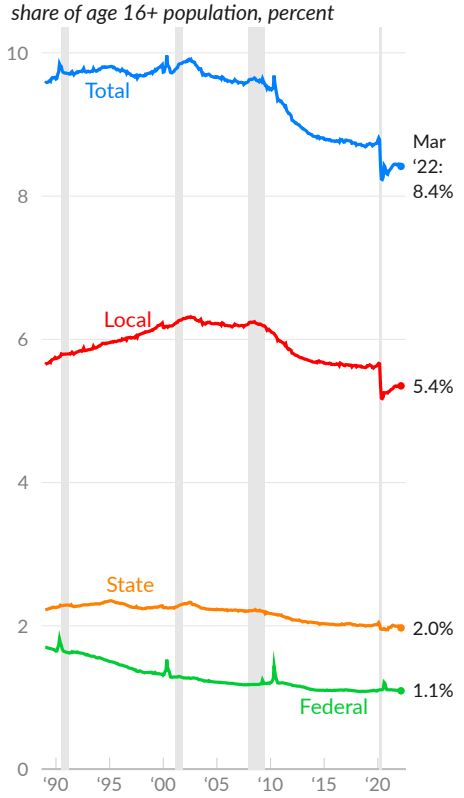
Source: Treasury Bureau of Fiscal Service

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 March 2022, there were 22.2 million government jobs, equivalent to 8.4 for every 100 people in the age 16+ population (see —). The previous year, in March 2021, there were 21.9 million government jobs, equivalent to 8.4 percent of the age 16 or 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 3.5 million additional government workers.

By level of government, there were 14.1 million local government workers in March 2022, equivalent to 5.4 percent of those age 16 or older (see —). In the same period, there were 5.2 million state government workers (2.0 percent of 16+ year olds, see —), and 2.9 million federal government workers (1.1 percent, see —).

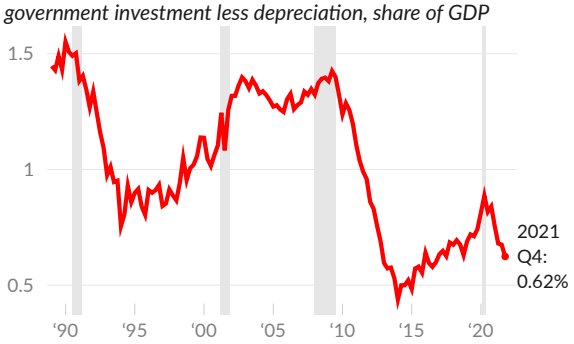
Since 2019, the US has lost 562,000 total government jobs. Of these, 552,000, or 98.2 percent of the shortfall, are local government jobs. During the same period, state governments lost 54,000 jobs, while the federal government added 44,000 jobs.

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 2021 Q4, government net investment is $149.8 billion. Government net investment is equivalent to 0.62 percent of GDP in 2021 Q4 (see —), compared to 0.84 percent in 2020 Q4, and 0.74 percent in 2019 Q4.

Government Net Investment

government investment less depreciation, share of GDP



Source: Bureau of Economic Analysis

Government Balance Sheets

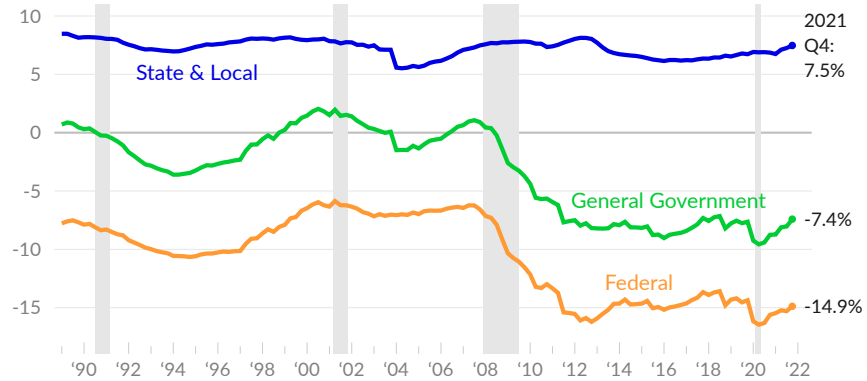
Public Wealth

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 -$20.4 trillion, as of 2021 Q4, equivalent to -7.4 percent of national wealth (see —). Federal government net worth (not including land) is equal to -14.9 percent of national wealth (see —), while state and local government net worth is equilavent to 7.5 percent (see —).

Government Share of US Wealth

government share of US net worth, percent

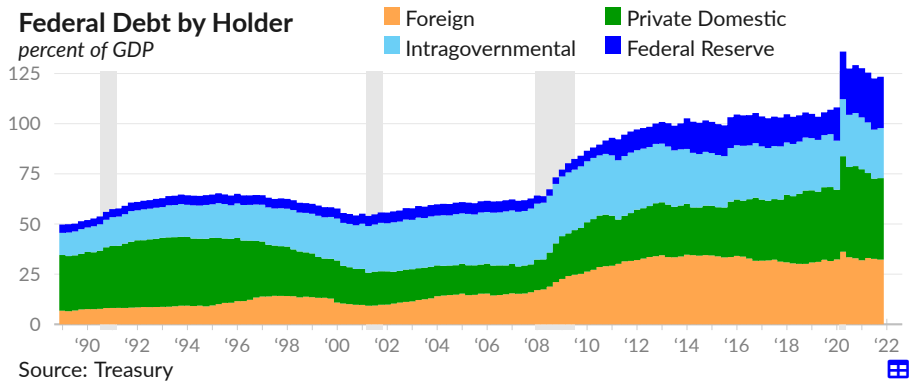


Source: Federal Reserve

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 fourth quarter of 2021, total public debt was $29.6 trllion, equivalent to 123.4 percent of GDP. Of this, $9.8 trillion, or 32.9 percent of the total, is held by private domestic investors (see ■). An additional $7.7 trillion, or 26.1 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.

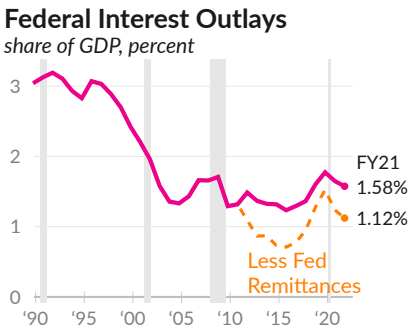


Source: Treasury

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



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 FY2021, the Fed returned more than $100 billion to the Treasury. Adjusting for these remittances, the interest expense was 1.12 percent of GDP in FY2021 (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.

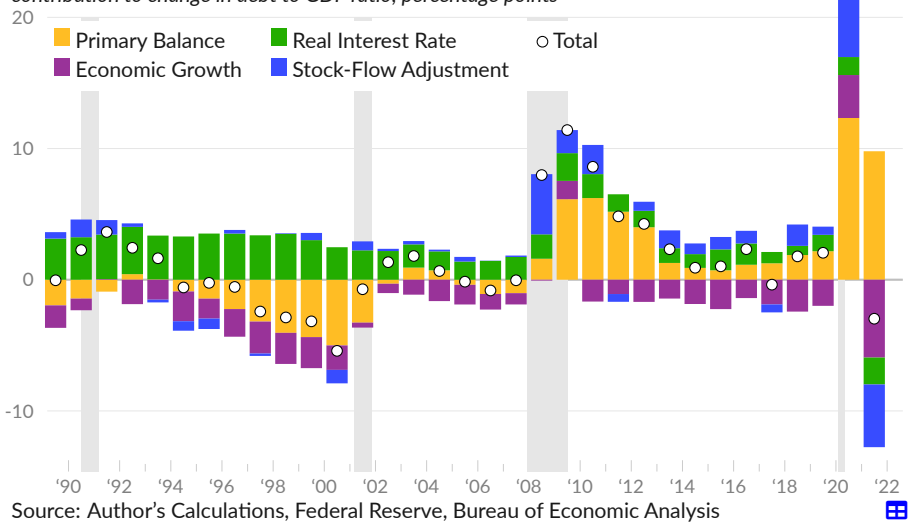
In a mechanical way, government debt is the result of the accumulation of past deficits. When the government spends more than it takes in through taxes, it borrows the difference, which adds to the debt. Importantly, some government spending is interest payments on the debt. The *primary balance* measures 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 three percentage points (see ○). The primary balance added 9.8 percentage points to the debt to GDP ratio (see ■), economic growth subtracted 5.9 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 4.8 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

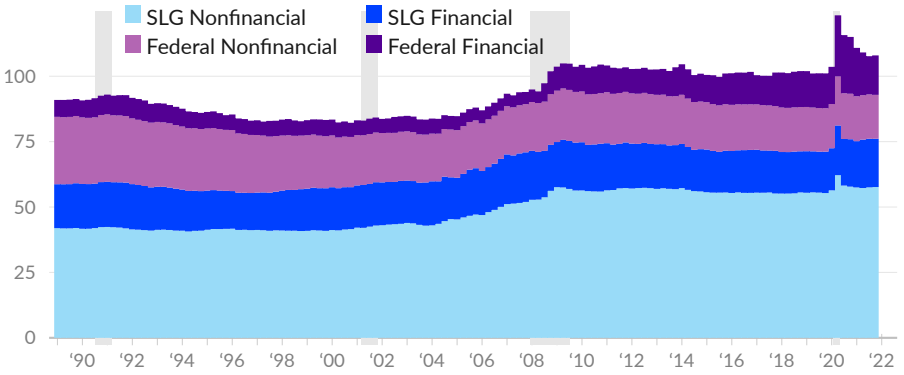
US government assets include financial assets but are mostly comprised of the non-financial assets of state and local governments (SLG), such as buildings and equipment. Land is not included in US measures of government assets.

In the fourth quarter of 2021, the market value of government assets, excluding land, is $25.9 trillion, equivalent to 108.0 percent of GDP. Of this, state and local government nonfinancial assets, such as buildings and equipment, are equivalent to 57.6 percent of GDP (see), and state and local government financial assets, such as insurance trust funds, are equivalent to 18.5 percent of GDP (see).

The market value of federal government nonfinancial assets is equivalent to 16.8 percent of GDP in 2021 Q4 (see). Federal government financial assets are valued at 15.1 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

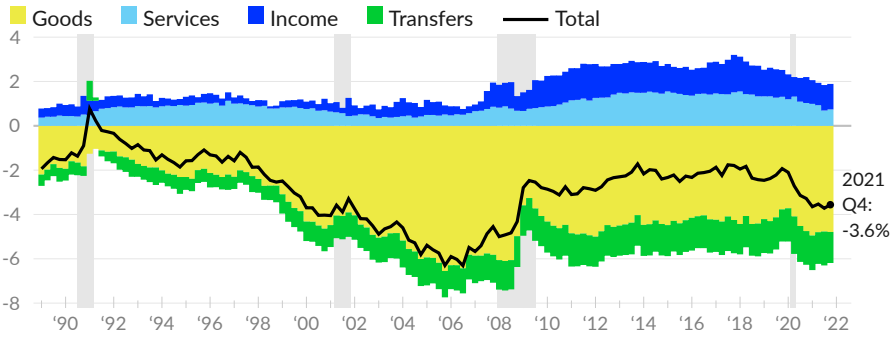
The **current account balance** captures international payments for goods and services as well as international transfers of money and net income received from ownership of foreign assets. It is the result of a set of payments to US residents, called current receipts, which are largely for exports of 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 2021 Q4, the US runs a current account deficit of 3.6 percent of GDP, primarily as the result of a trade deficit on goods of 4.8 percent of GDP. In 2021 Q3, the current account deficit was equivalent to 3.7, and the trade deficit was equivalent to 4.8 percent of GDP.

Current Account Balance

balance on individual current account component, as percent of GDP



Source: Bureau of Economic Analysis

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

Components of Current Account

share of GDP, percent *moving averages*

	2021 Q4	'21 Q3	'21 Q2	'21 Q1	'20 Q4	'20 Q3	3-year	10-year
Current receipts	16.80	16.56	16.47	16.20	15.99	15.39	16.87	18.13
Exports	11.06	10.71	10.82	10.49	10.34	9.84	11.00	12.28
Goods	7.82	7.55	7.59	7.29	7.08	6.68	7.39	8.23
Durable	4.18	4.16	4.25	4.18	4.15	3.96	4.29	5.01
Nondurable	3.64	3.39	3.34	3.12	2.93	2.73	3.10	3.21
Services	3.24	3.17	3.23	3.20	3.26	3.15	3.61	4.05
Income receipts	5.01	5.10	4.89	4.91	4.86	4.71	5.09	5.07
Transfer receipts	0.74	0.75	0.76	0.80	0.79	0.84	0.78	0.78
Current payments	20.36	20.28	20.01	19.85	19.26	18.53	19.73	20.55
Imports	15.11	14.79	14.70	14.45	14.06	13.27	14.28	15.33
Goods	12.61	12.32	12.40	12.24	11.83	11.21	11.79	12.61
Durable	8.02	7.87	8.11	8.13	7.98	7.43	7.65	7.94
Nondurable	4.60	4.44	4.29	4.12	3.85	3.78	4.14	4.67
Services	2.49	2.48	2.31	2.21	2.23	2.07	2.49	2.72
Income payments	3.85	3.95	3.88	3.84	3.69	3.64	3.94	3.77
Transfer payments	1.40	1.53	1.43	1.56	1.52	1.62	1.51	1.45
Current account balance	-3.56	-3.72	-3.53	-3.65	-3.28	-3.14	-2.85	-2.42

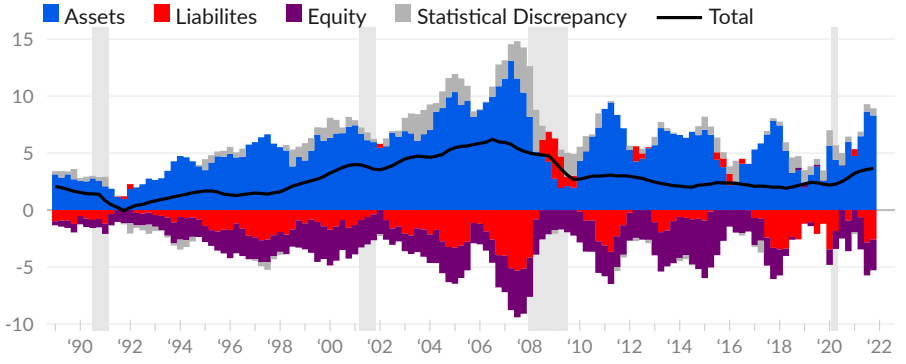
Source: Bureau of Economic Analysis

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 fourth quarter of 2021, the rest of the world acquired $1.84 trillion in US assets, equivalent to 8.3 percent of GDP (see ■). The rest of the world incurred the equivalent of -2.6 percent of US GDP in liabilities (see ■) and issued -2.7 percent of US GDP of equity in foreign businesses (see ■).

Financial Account Balance

percent of GDP, one-year moving average



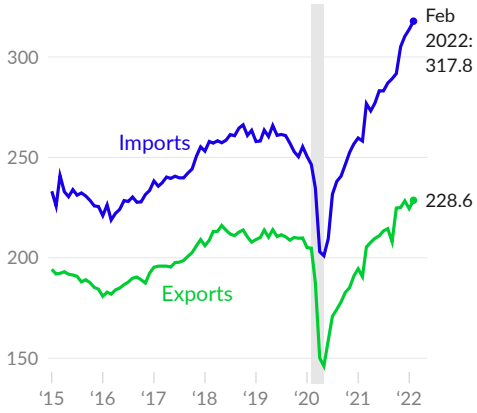
Source: Federal Reserve

Trade

Goods and services trade between the US and the rest of the world is reported each month by the Census Bureau. US purchases of foreign goods and services are imports and foreign purchases of US goods and services are exports. Trade in goods includes consumer goods, industrial equipment, and agricultural products. Trade in services includes travel and tourism, business services, and charges for the use of intellectual property, among other services.

US Imports and Exports, Monthly

billions of USD, seasonally adjusted



Trade Balance, Monthly

billions of USD, seasonally adjusted

Source: Census Bureau

US imports of goods and services totaled $317.8 billion in February 2022, following imports of $313.7 billion in January (see —). Over the three months ending February 2022, imports averaged $313.9 billion per month, compared to an average of $258.2 billion per month one year prior, during the same three months. In 2019, imports averaged $258.7 billion per month.

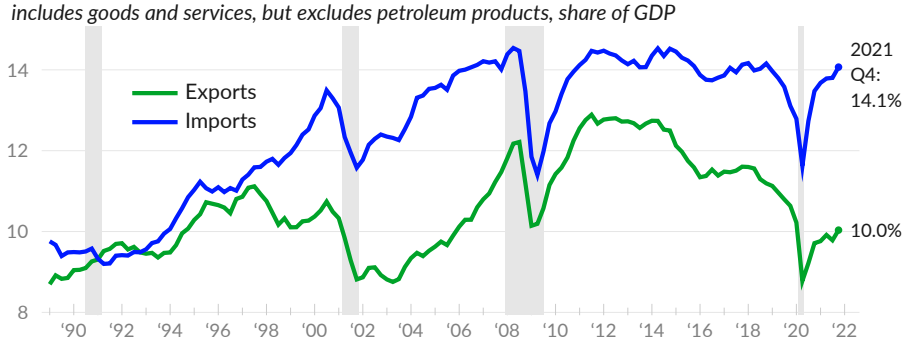
The US exported $228.6 billion of goods and services in February 2022, following $224.5 billion in January (see —). The three-month average was $227.2 billion in February, and $192.0 billion one year prior. Exports were $210.7 billion per month, on average, in 2019.

Spending on imports exceeds payments received for exports, so the US runs a trade deficit. In February, the trade deficit was $89.2 billion, following $89.2 billion in January (see —). Over the past three months, the trade deficit averaged $86.8 billion, compared to an average of $66.2 billion one year prior, during the same three months. In 2019, the trade deficit averaged $48.0 billion per month.

Nonpetroleum goods and services imports (see —) were equivalent to 14.1 percent of GDP in the the fourth quarter of 2021, while exports of nonpetroleum goods and services (see —) were equivalent to 10.0 percent of GDP. In 2019 Q4, nonpetroleum imports were 13.1 percent of GDP, and exports were 10.6 percent.

Imports and Exports, Nonpetroleum

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



Source: Bureau of Economic Analysis

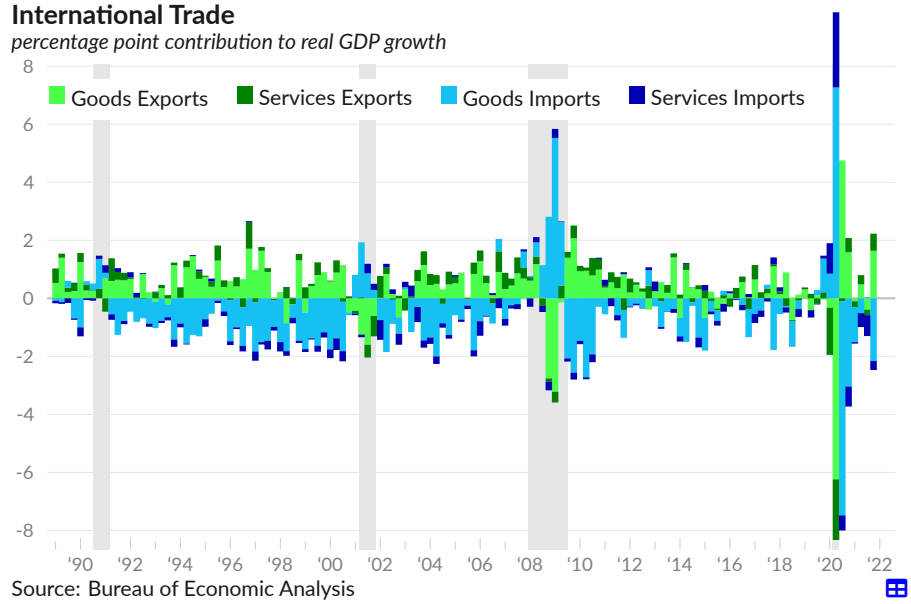
Contribution to Overall Growth

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

Goods exports contributed 1.64 percentage points to GDP growth in the fourth quarter of 2021 while services exports contributed 0.59 percentage point. Good imports subtracted 2.16 percentage points from GDP growth and services imports subtracted 0.31 percentage point.

International Trade

percentage point contribution to real GDP growth



Source: Bureau of Economic Analysis

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

Exports and Imports by Type

percentage point share of GDP — *period averages*

	2021 Q4	'21 Q3	'20 Q4	2016	2012 –13	2005 –06	1998 –99	1989 –93
Exports of goods and services	11.06	10.71	10.34	11.94	13.61	10.31	10.41	9.42
Exports of goods	7.82	7.55	7.08	7.74	9.35	7.30	7.52	6.84
Foods, feeds, and beverages	0.71	0.64	0.72	0.70	0.81	0.46	0.50	0.60
Industrial supplies & materials	2.83	2.74	2.23	2.07	2.95	1.92	1.55	1.65
Petroleum and products	1.02	0.93	0.63	0.53	0.90	0.28	0.11	0.12
Capital goods, except automotive	2.24	2.26	2.19	2.78	3.21	2.84	3.27	2.61
Automotive vehicles, & parts	0.63	0.59	0.71	0.80	0.90	0.77	0.79	0.67
Consumer goods, ex. food & auto	1.07	0.99	0.91	1.03	1.12	0.91	0.86	0.74
Durable goods	0.47	0.45	0.45	0.56	0.61	0.49	0.44	0.39
Nondurable goods	0.60	0.54	0.45	0.48	0.50	0.41	0.42	0.35
Exports of services	3.24	3.17	3.26	4.20	4.26	3.01	2.90	2.58
Transport	0.28	0.26	0.25	0.44	0.54	0.46	0.49	0.59
Travel	0.38	0.29	0.22	1.03	0.98	0.71	0.93	0.90
Intellectual property charges	0.48	0.47	0.57	0.60	0.67	0.50	0.40	0.29
Other business services	2.00	2.05	2.12	2.00	1.92	1.19	0.92	0.60
Imports of goods and services	15.11	14.79	14.06	14.65	16.73	15.99	12.65	10.38
Imports of goods	12.61	12.32	11.83	11.87	13.87	13.48	10.59	8.45
Foods, feeds, and beverages	0.81	0.82	0.75	0.70	0.69	0.54	0.46	0.43
Industrial supplies & materials	2.96	2.89	2.11	2.34	4.24	4.24	2.22	2.16
Petroleum and products	1.04	0.99	0.58	0.85	2.49	2.15	0.65	0.87
Capital goods, except automotive	3.32	3.32	3.23	3.18	3.36	3.00	3.03	2.04
Automotive vehicles, & parts	1.45	1.44	1.80	1.88	1.84	1.84	1.74	1.46
Consumer goods, ex. food & auto	3.39	3.22	3.31	3.13	3.18	3.20	2.47	1.83
Durable goods	1.78	1.69	1.72	1.64	1.71	1.75	1.29	0.97
Nondurable goods	1.62	1.53	1.59	1.49	1.47	1.46	1.18	0.86
Imports of services	2.49	2.48	2.23	2.78	2.87	2.51	2.06	1.93
Transport	0.52	0.49	0.35	0.49	0.59	0.60	0.54	0.55
Travel	0.33	0.30	0.14	0.58	0.55	0.57	0.63	0.61
Intellectual property charges	0.20	0.22	0.22	0.22	0.21	0.18	0.13	0.06
Other business services	1.31	1.32	1.38	1.32	1.32	0.91	0.57	0.38

Source: Bureau of Economic Analysis

Import Penetration

Goods can be produced domestically, 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.

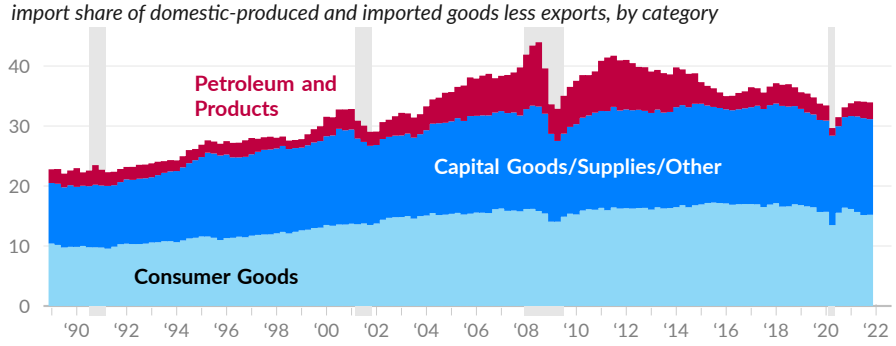
From 1989 to 2011, imports of consumer goods excluding petroleum increased by the equivalent of 5.7 percent of domestic consumption of goods; petroleum-related imports increased by the equivalent of 6.3 percent; and all other goods imports increased by the equivalent of 6.2 percent.

Since 2011, imports of consumer goods decreased by the equivalent of 1.2 percent of domestic goods demand; imports of petroleum products decreased by the equivalent of 5.6 percent; and other imports decreased by the equivalent of 0.2 percent.

As of 2021 Q4, imports of consumer goods excluding petroleum and petroleum products are equivalent to 15.2 percent of domestic consumption of goods (see ■). Petroleum-related imports claim 2.8 percent (see ■) and imports of all other goods, primarily capital goods, industrial supplies, and materials are equivalent to 15.9 percent (see ■).

Import Share of Goods

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



Source: Bureau of Economic Analysis

The US Census Bureau report monthly data on US trade in goods, including by partner country. In February 2022, trade with the top 25 trading partners (see table) comprises 86.4 percent of total US trade in goods.

US Trade in Goods *census basis, millions of USD, not seasonally adjusted*	February 2022			February 2021		
	Imports	Exports	Total	Imports	Exports	Total
Total, All Countries	234,429	150,682	385,111	193,811	123,936	317,748
Mexico	32,536	23,715	56,251	27,428	21,046	48,474
Canada	30,923	25,283	56,207	25,215	22,170	47,385
China	42,259	11,593	53,853	34,027	9,410	43,437
Japan	11,281	6,740	18,021	9,262	5,239	14,502
Germany	9,503	5,266	14,769	9,247	4,886	14,134
South Korea	8,359	5,089	13,449	6,205	4,573	10,778
India	5,974	3,865	9,839	4,493	2,866	7,359
Taiwan	6,581	3,229	9,811	4,466	2,261	6,728
United Kingdom	4,052	5,486	9,539	3,887	4,539	8,427
Vietnam	8,170	837	9,008	6,759	978	7,738
Netherlands	2,758	5,473	8,231	2,011	4,146	6,157
Ireland	6,365	1,517	7,883	6,353	913	7,266
France	3,904	3,232	7,136	4,330	2,027	6,358
Switzerland	5,138	1,886	7,024	4,904	1,587	6,492
Italy	4,508	2,156	6,664	4,165	1,529	5,694
Brazil	2,336	3,580	5,916	1,693	2,988	4,682
Thailand	4,238	945	5,184	3,092	843	3,936
Singapore	1,875	3,184	5,059	1,776	2,398	4,175
Malaysia	3,728	1,314	5,043	3,588	1,127	4,715
Belgium	1,888	2,752	4,641	1,831	2,849	4,681
Spain	1,577	1,967	3,545	1,289	1,048	2,337
Australia	1,052	2,137	3,190	1,032	1,704	2,736
Russia	2,577	497	3,075	1,714	595	2,309
Indonesia	2,471	595	3,066	1,603	742	2,345
Turkey	1,495	1,470	2,965	997	744	1,742

Source: Census Bureau

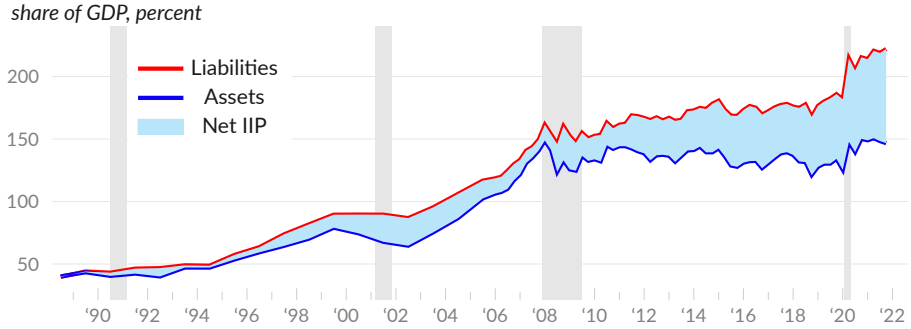
International Investment Position

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 2021 Q4, domestic holdings of foreign assets total $35.2 trillion, equivalent to 146.7 percent of GDP (see —). In 2021 Q3, these assets were equivalent to 148.4 percent of GDP, and in 2019, they were equivalent to 130.6 percent. Domestic liabilities to the foreign sector total $53.3 trillion, or 222.1 percent of GDP, in 2021 Q4, following 218.9 percent in 2021 Q3, and 181.3 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 75.4 percent of GDP in 2021 Q4, following 70.5 percent in 2021 Q3, and 50.6 percent in 2019 (see).

International Investment
share of GDP, percent



Source: Bureau of Economic Analysis

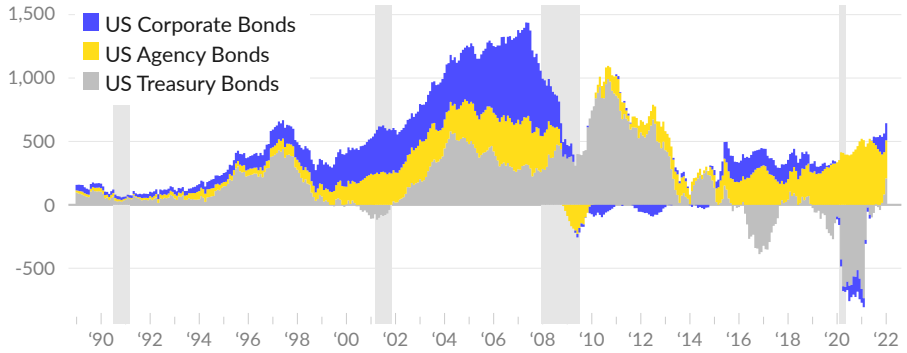
Capital Flows

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 January 2022, the rest of the world was a net buyer of $208 billion of US treasury bonds, equivalent to 0.9 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 $134 billion of US corporate bonds, (see).

Long-term Bond Flows

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



Source: Treasury International Capital, Setser

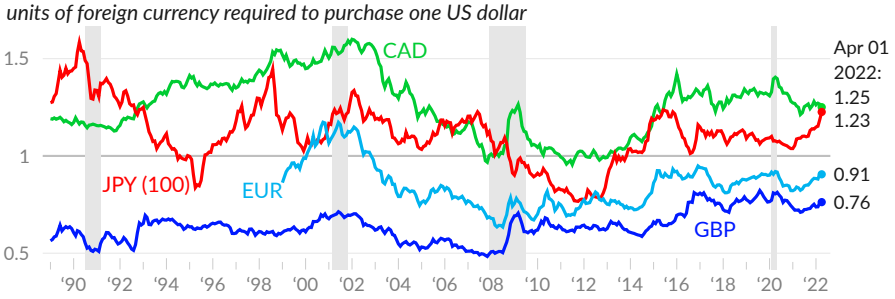
Exchange Rates

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 April 1, 2022, one US dollar buys approximately: 1.25 Canadian dollars (see —), 123 Japanese yen (see —), 0.91 euros (see —), and 0.76 British pounds (see —). Over the past three years, the nominal exchange rate between the US dollar and the Canadian dollar decreased 0.5 percent, the USD-JPY rate increased 10.8 percent, the USD-EUR rate increased 6.3 percent, and the USD-GBP rate increased 5.2 percent.

Selected Exchange Rates

units of foreign currency required to purchase one US dollar

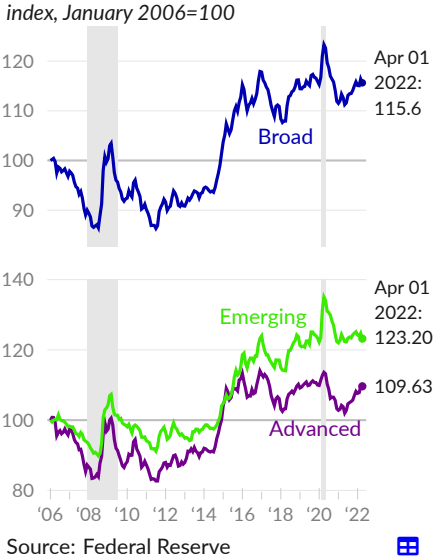


Source: Federal Reserve

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 April 1, 2022, the broad dollar index is 15.6 percent above its value at inception in 2006. Over the past three years, the index value has averaged 115.6, compared to an average of 112.7 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 23.2 percent against emerging market currencies (see —), and increased 9.6 percent against advanced economy currencies (see —).

Summarizing exchange rates using a trade-weighted index can be complicated by shifts in relative consumer prices between the US and trading partners. For example, the exchange rate between the US dollar and the Japanese yen has been relatively stable in nominal terms since the 1990s, but there has been less inflation in consumer prices in Japan than in the US. As a result, 100 yen buys more consumer goods in Japan than one dollar will buy in the US.

By incorporating the consumer price index in the US and in trading partners, again weighted by the amount of trade with each partner, it is possible to compare a basket of consumer goods across currencies. The measure is still affected by differences in the consumer basket between countries.

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 February 2022, the US dollar real effective exchange rate has increased 19.8 percent since 2010. In 2019, the index average was 117.0. Over the past three months, the index average value was 119.8.

Selected Exchange Rates

units of foreign currency required to buy one US dollar

	Apr 1, 2022	1-month moving average	1-year moving average	2019 average	1-month percent change	1-year percent change	5-year percent change
EUR	0.906	0.908	0.860	0.893	0.5	7.8	-5.0
GBP	0.763	0.760	0.732	0.784	1.9	5.9	-6.7
JPY	122.6	119.1	112.3	109.0	6.1	12.3	5.4
CAD	1.251	1.265	1.254	1.327	-1.2	0.3	-7.3
MXN	19.84	20.51	20.33	19.25	-3.8	-4.0	-4.1
CNY	6.36	6.35	6.42	6.91	0.7	-2.2	-8.5
CHF	0.926	0.930	0.919	0.994	0.4	-0.2	-9.5
HKD	7.83	7.82	7.78	7.84	0.3	0.9	1.0
INR	75.96	76.22	74.44	70.38	0.5	4.7	11.9
AUD	1.335	1.354	1.351	1.439	-2.8	2.9	-3.6
NZD	1.447	1.454	1.435	1.518	-1.9	3.6	0.7
BRL	4.69	4.95	5.34	3.94	-8.9	-17.0	44.6
KRW	1215.3	1222.0	1166.0	1165.8	0.8	7.5	0.7
MYR	4.21	4.20	4.17	4.14	0.4	2.2	-6.1
DKK	6.74	6.76	6.40	6.67	0.5	7.8	-5.0
NOK	8.74	8.83	8.67	8.80	-1.5	2.7	0.9
SEK	9.36	9.55	8.81	9.46	-3.4	9.9	2.6
ZAR	14.66	14.91	14.84	14.45	-4.1	-1.5	7.6
SGD	1.357	1.359	1.348	1.364	0.1	0.7	-6.3
TWD	28.68	28.48	27.94	30.90	2.3	1.2	-11.1

Source: Federal Reserve

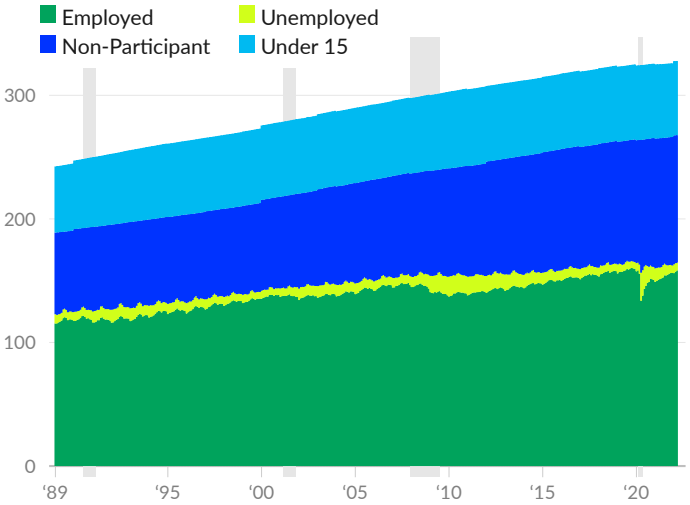
Labor Markets

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 March 2022, 158.4 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 48.3 percent as of March 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



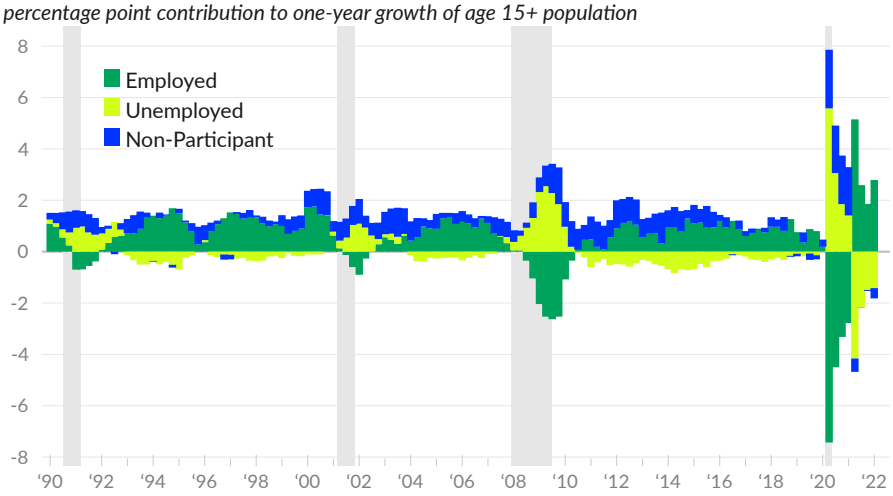
Source: Author's Calculations from CPS

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 March 2022, there are 6.3 million unemployed people. The combined group of employed and unemployed people is the labor force. The number of unemployed people divided by the number of people in the labor force is the unemployment rate, currently 3.8 percent. The number of people in the labor force divided by the total population is the labor force participation rate, currently 50.2 percent.

People who are not employed and not unemployed are considered to be outside of the labor force. Nonparticipants usually comprise about half of the population, and total 163.2 million in March 2022. The category includes children (60.0 million), students (18.5 million), unpaid caregivers (12.5 million), those unable to work due to disability or illness (14.3 million), those who want a job but have given up looking (5.7 million), and retirees and the elderly (50.2 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

March 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	263,444	29,741	62,709	35,905	29,665	63,885	41,539
Employed	158,106	18,498	53,091	12,314	17,505	46,623	10,075
Multiple jobs	7,491	736	2,480	469	885	2,506	415
Full-time	120,047	12,739	46,193	8,821	10,633	35,586	6,076
Part-time	38,058	5,758	6,898	3,493	6,873	11,038	3,999
Economic reasons	4,265	825	1,246	322	573	1,109	190
Unemployed	6,168	1,467	1,677	362	1,040	1,370	253
Not in Labor Force	99,170	9,776	7,942	23,229	11,120	15,892	31,212
Discouraged	5,501	1,005	1,002	550	1,061	1,242	641
Disabled/Ill	14,316	871	3,832	2,327	654	3,905	2,728
Family/Care	12,421	353	830	70	2,178	8,001	989
School	14,667	6,968	374	11	6,840	449	26
Retirement	50,436	98	1,482	20,135	122	1,922	26,676

Source: Author's Calculations from CPS

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

Labor Force Changes

Change from March 2020 to March 2022, thousands of people

	Total, 16+	Men, 16–29	Men, 30–59	Men, 60+	Women, 16–29	Women, 30–59	Women, 60+
Population	3,686	-450	1,459	1,707	-327	404	893
Employed	2,938	75	1,307	726	-15	1,009	-163
Multiple jobs	143	100	65	-41	10	44	-35
Full-time	6,152	508	2,204	745	415	2,150	131
Part-time	-3,214	-433	-897	-19	-430	-1,142	-294
Economic reasons	-1,612	-234	-506	-39	-342	-364	-128
Unemployed	-1,202	-199	-276	-140	-214	-309	-64
Not in Labor Force	1,949	-326	428	1,120	-98	-296	1,121
Discouraged	300	-33	-19	44	38	163	106
Disabled/Ill	212	-55	223	124	130	-235	26
Family/Care	287	60	139	-1	85	-59	62
School	-793	-239	-52	-2	-315	-163	-22
Retirement	2,160	16	169	956	15	63	941

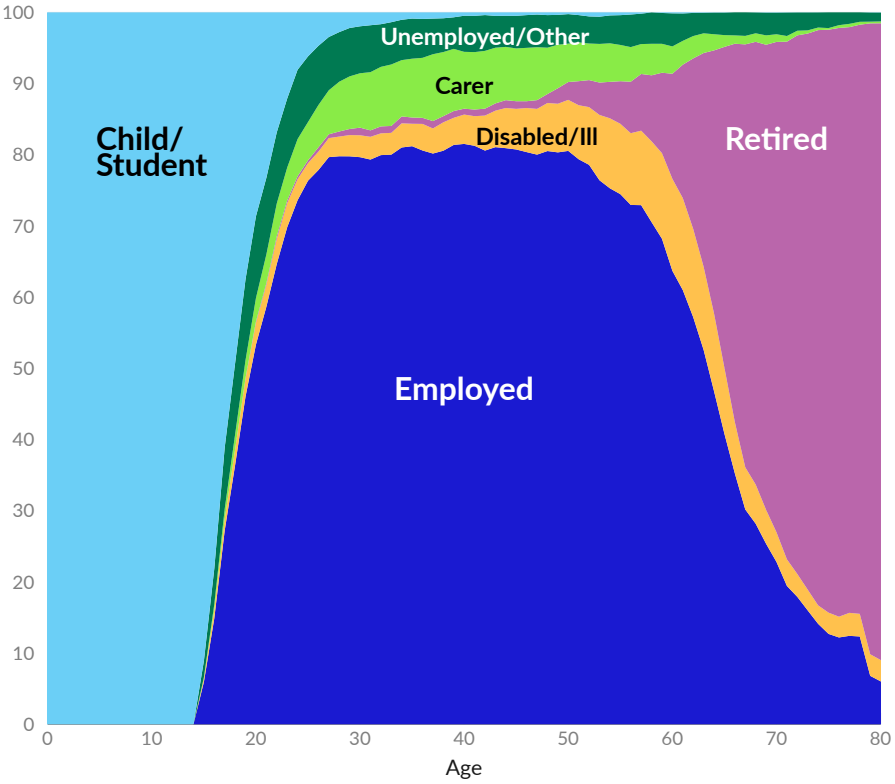
Source: Author's Calculations from CPS

Labor Force Status and Age

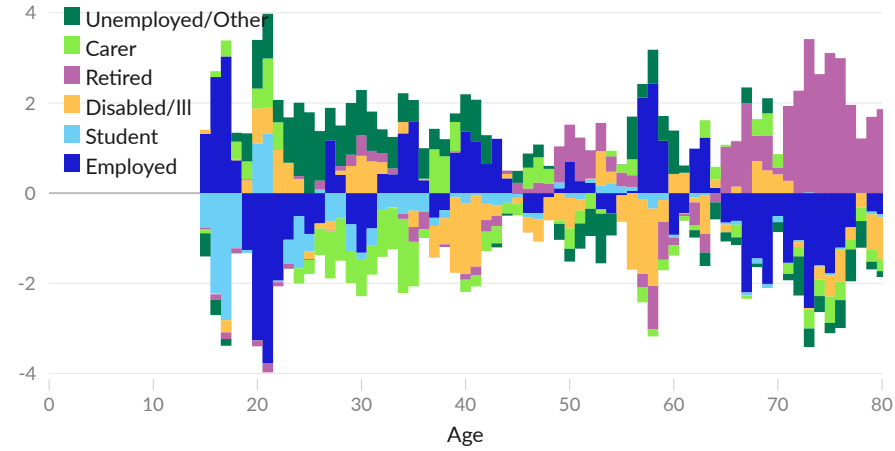
There is a clear relationship between age and employment. Children are not permitted to work and many young people attend school full time. During ages 25 to 54, around 80 percent of the population is employed. The remaining 20 percent include caregivers and those unable to work due to disability or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



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



Source: Author's Calculations from CPS, Bruenig

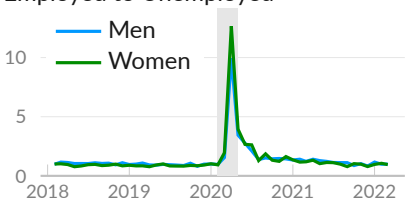
Gross Labor Force Status Changes

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.

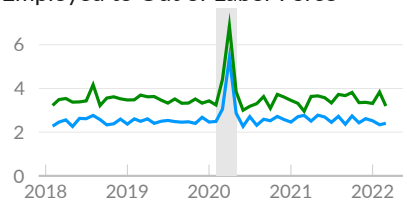
Gross Labor Force Flows

share of initial labor force status, percent

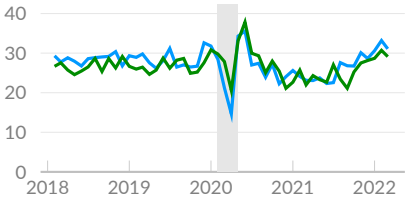
Employed to Unemployed



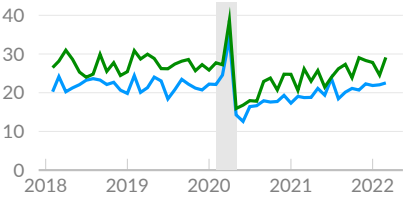
Employed to Out of Labor Force



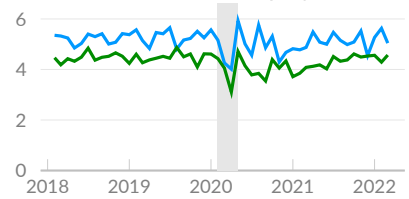
Unemployed to Employed



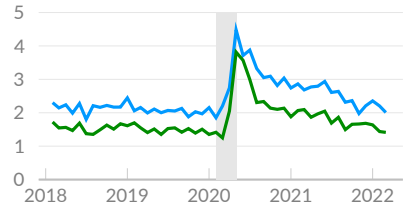
Unemployed to Out of Labor Force



Out of Labor Force to Employed



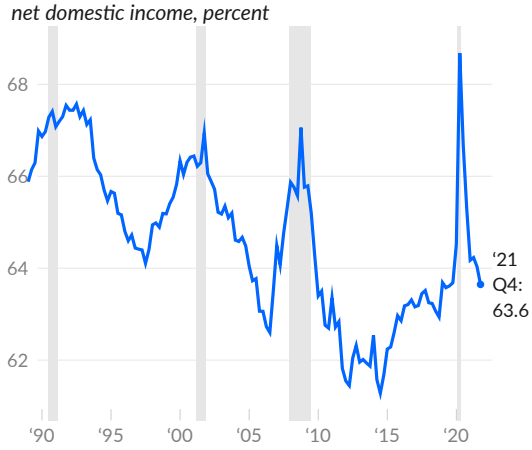
Out of Labor Force to Unemployed



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 fourth quarter of 2021, labor receives 63.6 percent of net domestic income. Labor's share decreased 1.7 percentage points over the past year. The labor share is 2.4 percentage points above its 30-year low of 61.3 percent in 2014 Q3, and 5.0 percentage points below the 30-year high of 68.7 percent in 2020 Q2.

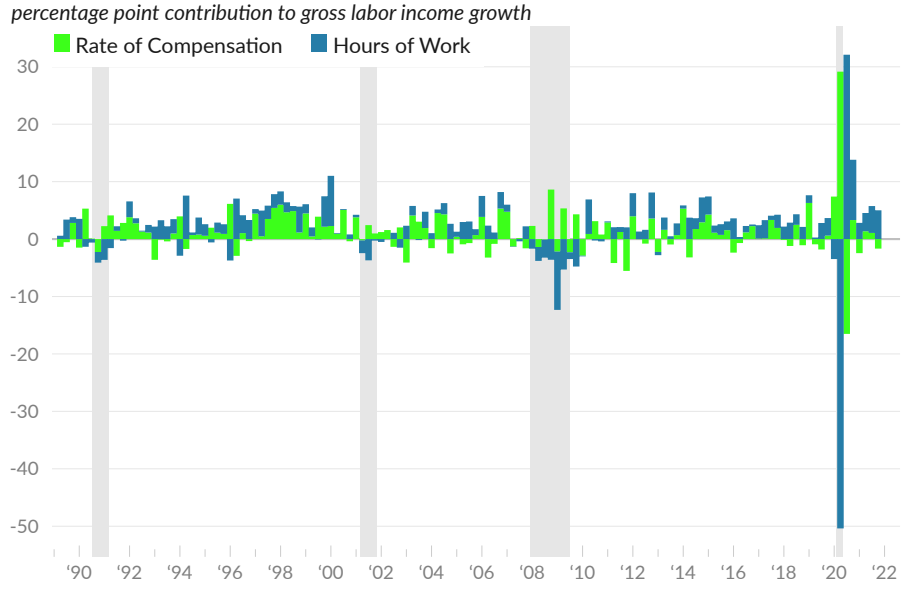
Gross Labor Income

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

Gross labor income (compensation of employees in the national accounts), which captures both the amount of employment (see ■) and the rate of compensation (see ■), increased at an annualized and inflation-adjusted rate of 3.35 percent in 2021 Q4. Changes in wages subtracted 1.66 percentage points, and changes in total hours worked contributed 5.01 percentage points.

Gross Labor Income Growth

percentage point contribution to gross labor income growth



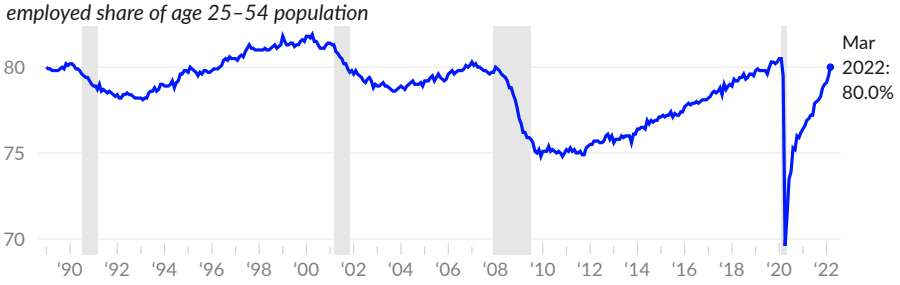
Source: Author's Calculations

Employment

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 March 2022, 80.0 percent of 25–54 years olds were employed, compared to 79.5 percent in February 2022. Over the past year, the age 25–54 employment rate increased 3.1 percentage points. The March 2022 rate was 1.4 percentage points (equivalent to 1.8 million workers) below the average rate of 81.4 during the tight labor market of 1999–2000.

Age 25–54 Employment Rate

employed share of age 25–54 population



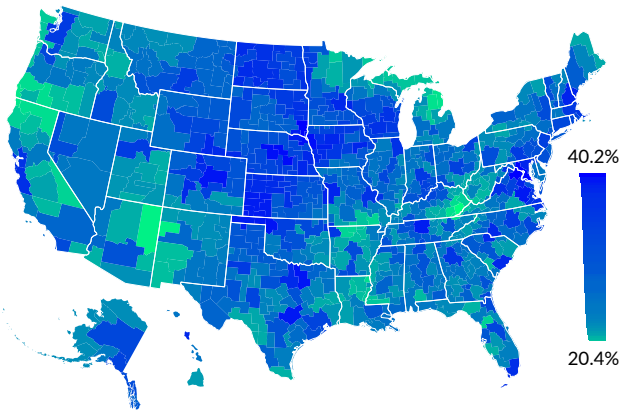
Source: Bureau of Labor Statistics

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

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

Commuter Zone Fully-Employed Rate

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



Top 10:

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

Bottom 10:

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

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

Employment Rates of Largest Commuter Zones, 2020

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

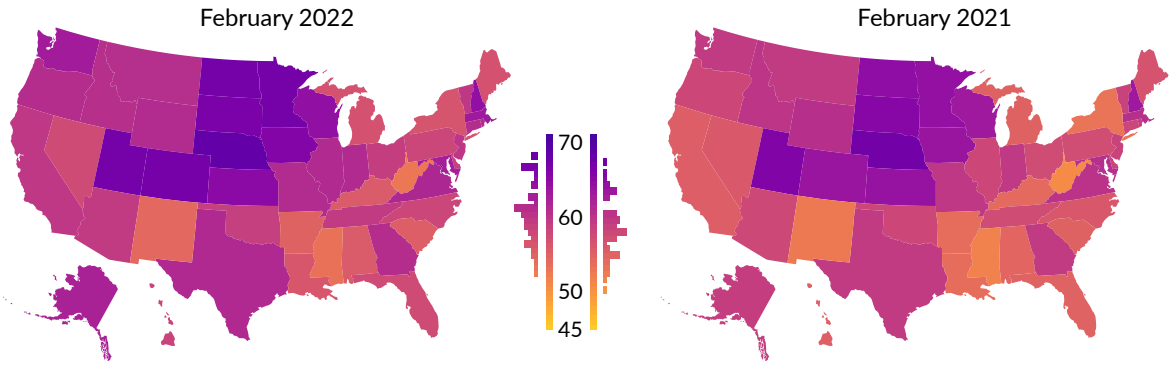
Source: American Community Survey, Dorn, Author's Calculations

The share of the age 16 and older population that is employed in any amount at a point in time varies by state and over time. In February 2022, 24 states had an employment rate above below 60 percent, compared to 43 in April 2020. In February 2021, 37 states had an employment rate below 60 percent and three states had an unemployment rate above 65 percent. The employment rate was above 65 percent in eight states.

The states with the highest employment rates in February 2022 are Nebraska (68.1%), the District of Columbia (68.0%), and Utah (66.6%). The states with the lowest employment rates are West Virginia (52.4%), Mississippi (53.0%), and New Mexico (54.0%).

Employment Rate by State

employed share of population, percent



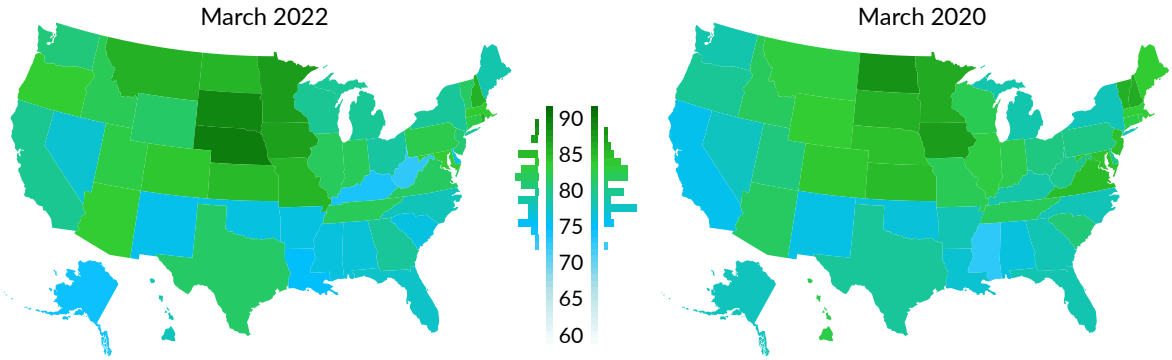
Source: Bureau of Labor Statistics

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 March 2022, the states with the highest employment rates for 25 to 54 year olds are Nebraska (89.4 percent), South Dakota (88.8 percent), and Minnesota (87.1 percent).

The age 25–54 employment rate is lower in March 2022 than it was in March 2019 in 29 states, and higher in 22 states. Comparing the latest three months to the previous three months, the seasonally-adjusted age 25–54 employment rate increased in 27 states, decreased in 21 states, and was unchanged in three states.

Age 25–54 Employment Rate by State

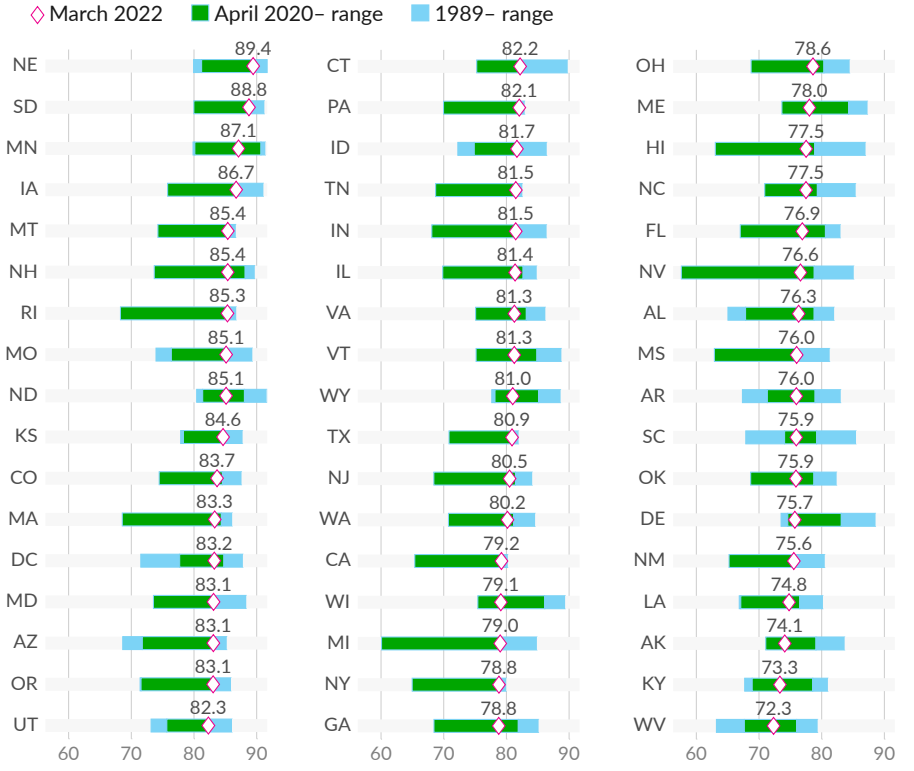
employed share of age 25–54 population, percent, not seasonally adjusted



Source: Author's Calculations from CPS

Employment Rate by State

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



Source: Author's Calculations from CPS

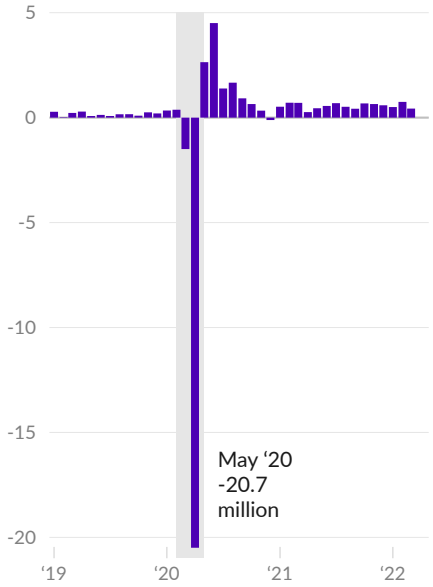
Payroll Employment

The establishment survey from the monthly jobs report asks nonfarm businesses about their payrolls. In March 2022, there were a seasonally adjusted total of 150.9 million such **nonfarm payroll jobs**.

The establishment survey is particularly useful for identifying how many jobs were added or lost in each industry each month. The US added 431,000 total payroll jobs in March 2022 (see ■), compared to 750,000 added in February 2022, and an average of 562,000 added over the past three months. US payrolls shed a combined 22.0 million jobs in March and April 2020, and have since recovered 20.4 million jobs (92.8 percent).

To maintain a steady employment rate with population growth, the US needs to add around 150,000 jobs per month. In 2019, the US was adding an average of 164,000 jobs per month.

Total Nonfarm Payroll Growth
one-month change, in millions



Source: Bureau of Labor Statistics

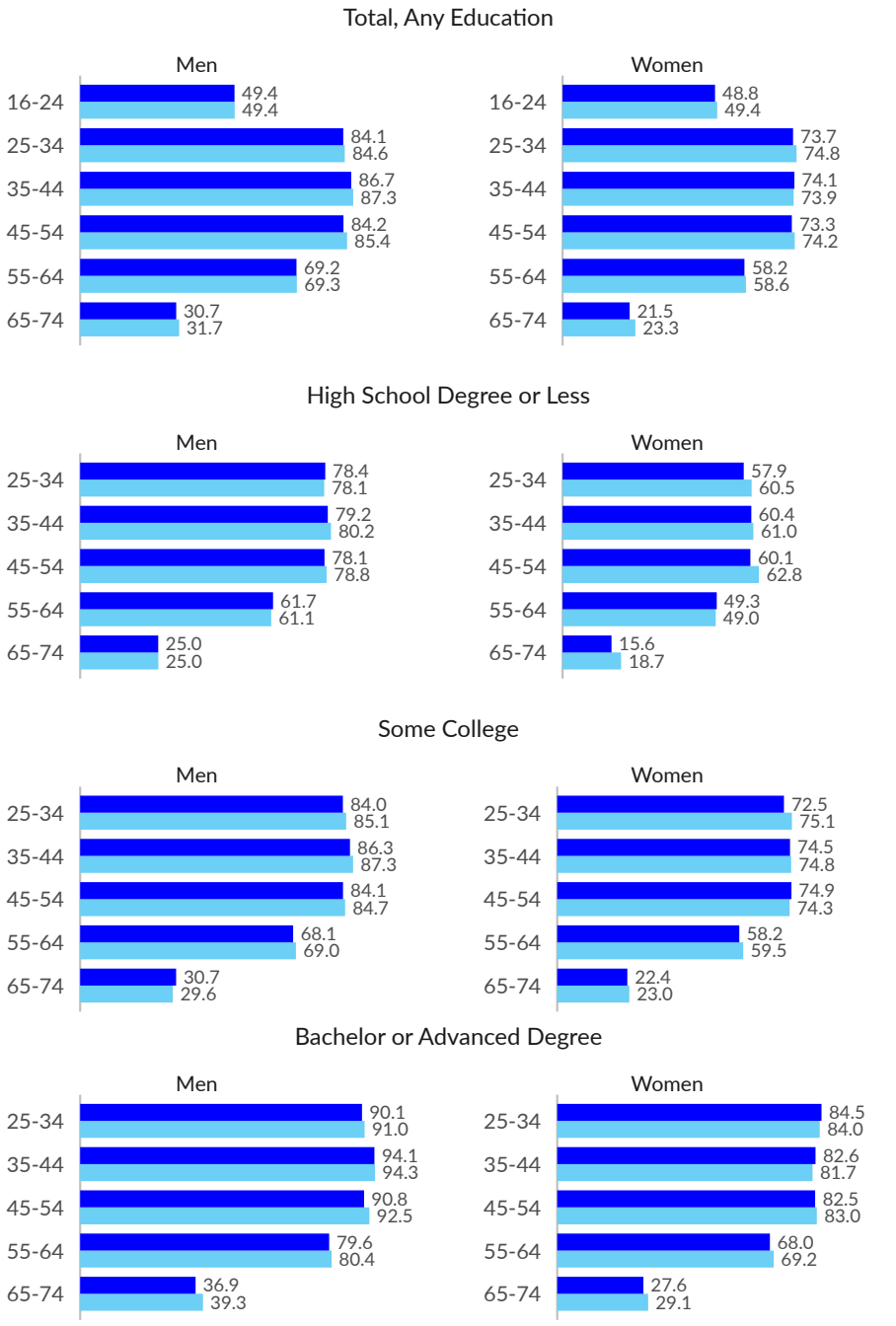
Nonfarm Payrolls by Industry Group
seasonally adjusted, thousands *levels* *monthly change* *cumulative*

	Mar 2022	Mar 2020	Mar 2022	Feb 2022	Jan 2022	2019 Avg	May '20–	Mar and Apr '20
Total	150,925	151,006	431	750	504	164	20,412	-21,991
Education & Health Services	24,142	24,360	53	117	33	49	2,383	-2,839
Professional & Business Serv.	22,116	21,308	102	105	88	23	3,025	-2,302
Retail Trade	15,876	15,511	49	110	121	-8	2,523	-2,245
Leisure & Hospitality	15,509	16,245	112	154	138	31	6,729	-8,203
Manufacturing	12,657	12,717	38	38	26	0	1,234	-1,362
Financial Activities	8,911	8,851	16	30	2	13	321	-280
Construction	7,628	7,549	19	57	6	11	1,112	-1,108
Transportation & Warehousing	6,402	5,787	-0	70	53	19	1,113	-506
Wholesale Trade	5,789	5,875	7	20	13	2	301	-405
Information	2,929	2,898	16	-5	5	3	287	-261
Mining & Logging	600	673	3	7	0	-4	-15	-71
Utilities	537	547	-1	-0	1	-0	-6	-4

Source: Bureau of Labor Statistics

Employment rates vary over time, but also by age, gender, and education. Over the three months ending March 2022, the employment rate for most age and education subgroups is lower than it was before the pandemic (the three months ending March 2020).

Employment Rates ■ March 2022 ■ March 2020
employed share of age group, percent



Source: Author's Calculations from CPS

Changes in Employment by Occupation

The COVID-19 pandemic changed the occupational composition of the US workforce. Business closures reduced the share of the US population that is employed in personal care and related services, administrative support, and sales. Many workers trained in these occupations lost or changed jobs and, additionally, some full-time workers became part-time. While employment increased in some occupations, such as healthcare support, the share of people employed full-time decreased in most occupational groups during the past three months, which end March 2022, compared to the same three months prior to the pandemic (ending March 2020).

Change in Occupational Employment, March 2022

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

Source: Author's Calculation from CPS

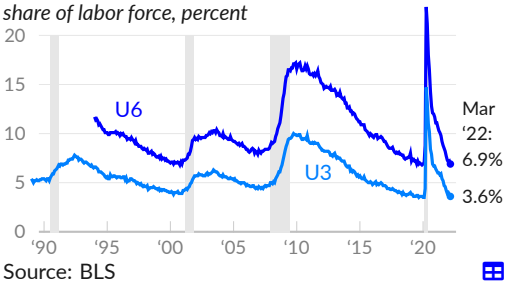
Unemployment

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 (those employed and unemployed). BLS reports 6.0 million unemployed people in March 2022, and an unemployment rate of 3.6 percent (see —), slightly below the February 2022 rate of 3.8 percent, and substantially below the March 2021 rate of 6.0 percent.

BLS also report a broader measure of unemployment, known as U6 or labor under-utilization. Labor under-utilization includes unemployed people counted in U3 as well as people who have given up looking for work and people who are part-time but would like to work full-time. In March 2022, the labor under-utilization rate is 6.9 percent (see —).

Unemployment Measures

share of labor force, percent

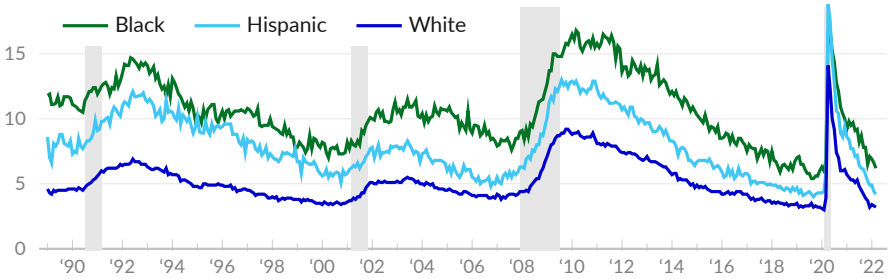


Source: BLS

Unemployment is much more common for disadvantaged groups, with the black or African American unemployment rate typically double the white unemployment rate. A very tight labor market may have the effect of reducing racial discrimination in hiring. However, disadvantaged groups are more likely to lose jobs in a downturn. As a result, the full-employment portion of the business cycle is quite short for many people. Since February 2020, the black unemployment rate has increased by 0.2 percentage point to 6.2 percent (see —).

Unemployment Rate

unemployed share of labor force, percent



Source: Bureau of Labor Statistics

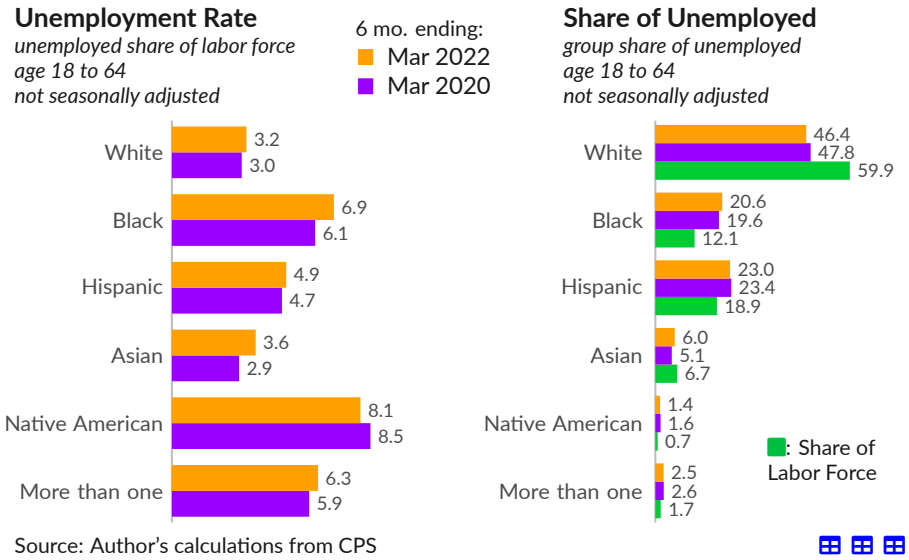
Unemployment Measures

seasonally adjusted, percent

	Mar '22	Feb '22	Jan '22	Dec '21	Nov '21	Oct '21	GFC peak	Date
Under-utilization Rate (U6)	6.9	7.2	7.1	7.3	7.7	8.2	17.2	Dec '09
Unemployment Rate (U3)	3.6	3.8	4.0	3.9	4.2	4.6	10.0	Oct '09
by race/ethnicity:								
White	3.2	3.3	3.4	3.2	3.7	3.9	9.2	Oct '09
Black	6.2	6.6	6.9	7.1	6.5	7.8	16.8	Mar '10
Hispanic	4.2	4.4	4.9	4.9	5.2	5.7	13.0	Aug '09
Asian	2.8	3.1	3.6	3.8	3.9	4.2	8.4	Dec '09

Source: Bureau of Labor Statistics

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



Source: Author's calculations from CPS

Unemployment Rate

Total, any race or ethnicity

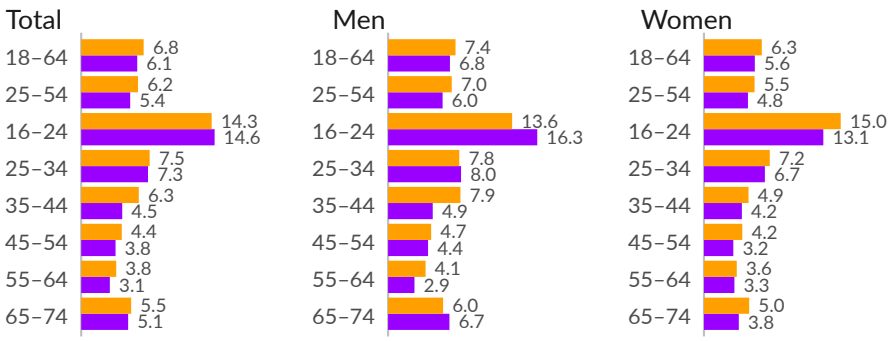
	Total	Men	Women
18–64	4.0 3.7	4.2 3.9	3.9 3.5
25–54	3.6 3.2	3.7 3.3	3.5 3.1
16–24	8.1 8.4	8.9 9.3	7.4 7.5
25–34	4.4 4.0	4.7 4.2	4.1 3.7
35–44	3.5 3.0	3.5 2.9	3.4 3.0
45–54	2.9 2.7	2.7 2.7	3.0 2.6
55–64	3.1 2.6	3.1 2.8	3.1 2.5
65–74	3.3 2.9	3.5 3.2	3.0 2.5

White, non-Hispanic, alone

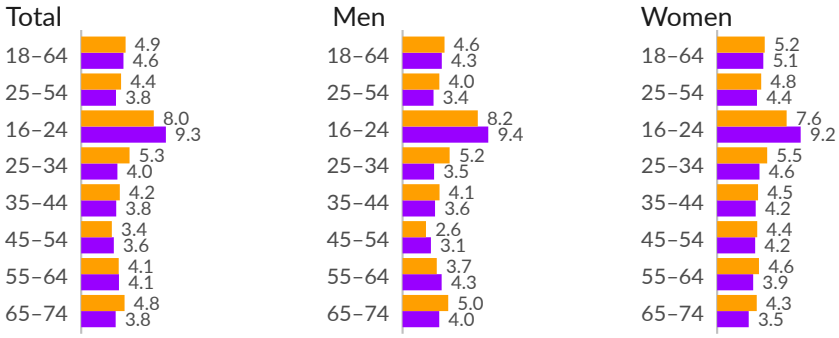
	Total	Men	Women
18–64	3.2 2.9	3.4 3.3	2.9 2.5
25–54	2.8 2.6	2.9 2.8	2.6 2.3
16–24	6.6 6.6	7.8 7.8	5.4 5.3
25–34	3.4 3.2	3.8 3.7	2.9 2.5
35–44	2.6 2.3	2.5 2.4	2.6 2.2
45–54	2.3 2.2	2.3 2.3	2.4 2.1
55–64	2.7 2.3	2.7 2.5	2.7 2.1
65–74	2.8 2.6	2.9 2.9	2.5 2.2

Unemployment Rate, Continued

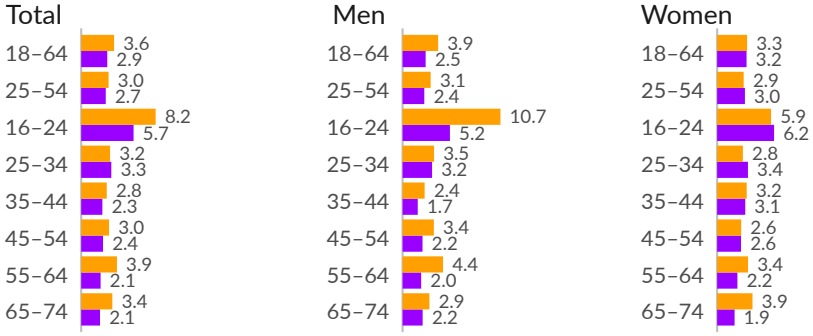
Black, non-Hispanic, alone



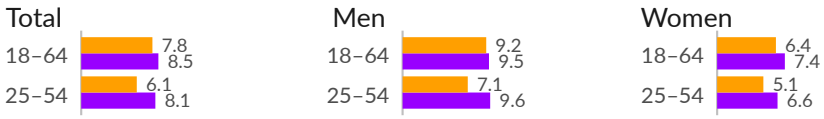
Hispanic, any race



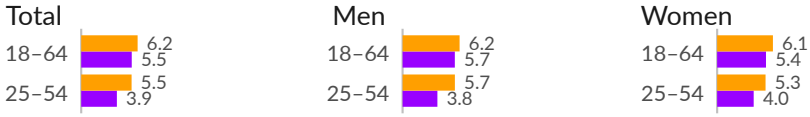
Asian or Hawaiian/Pacific Islander, non-Hispanic, alone



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

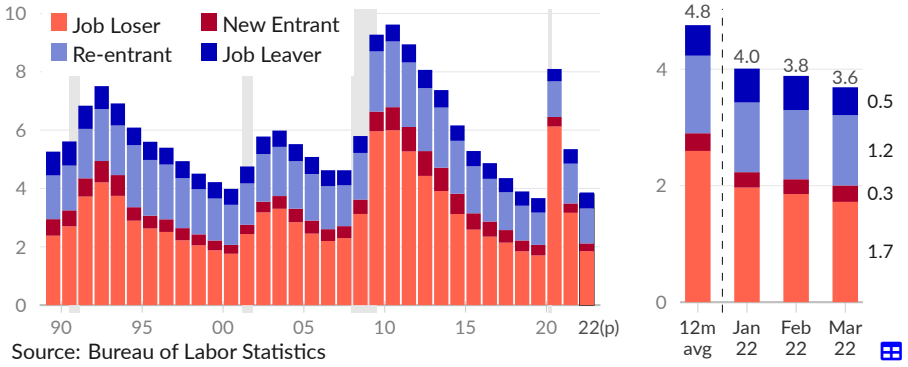
There are several **reasons for unemployment**. In March 2022, 2.8 million people, or 1.7 percent of the labor force, were unemployed from losing their job (see ■). An additional 0.5 percent voluntarily left a job (see ■). Re-entrants, people who left the labor force but are looking for a new job, comprised 1.2 percent (see ■). Lastly, 0.3 percent of the labor force were new entrants to the labor market, looking for their first job (see ■).

People's reasons for unemployment reflect economic conditions. In an economic downturn, job losses increase the unemployment rate and workers who lose jobs are a large share of the unemployed. A downturn also makes it harder for young people to find their first job. In contrast, an economic boom reduces job losses and improves job-finding.

Some categories of unemployment make up a bigger share of the total during an economic boom. An economic boom can entice people to re-enter the job market, and encourage workers to quit and look for a new job.

Unemployment by Reason

share of labor force, percent, annual average



recent data

Source: Bureau of Labor Statistics

Many job losses are temporary, particularly during the COVID-19 recession. Other job separations are permanent. In March 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

	Mar 2022	Feb 2022	Jan 2022	12m Avg.	Apr 2020	2020	2019	2009 –'11
Unemployed, Any Reason	3.6	3.8	4.0	4.8	14.7	8.1	3.7	9.3
■ Job Loser	1.7	1.9	2.0	2.6	13.2	6.1	1.7	5.7
Temporary Layoff	0.5	0.5	0.6	0.8	11.5	4.0	0.5	0.9
Permanent Separation	0.8	1.0	1.0	1.4	1.2	1.7	0.8	3.9
■ Re-entrant	1.2	1.2	1.2	1.3	1.0	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	0.6	0.6	0.5	0.4	0.4	0.5	0.6
See also:								
Employed, Not at Work*	2.8	2.9	4.7	3.7	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 March 2022, BLS reports that 0.56 percent of the age 16+ population have been unemployed for 27 weeks or longer, compared to 1.64 percent in March 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 March 2022, 0.88 percent of the age 16+ population have been unemployed for at least 15 weeks (see —), following 1.00 percent in February 2022, and 0.97 percent in January 2022.

Long-term Unemployed

unemployed 27+ weeks, share of population

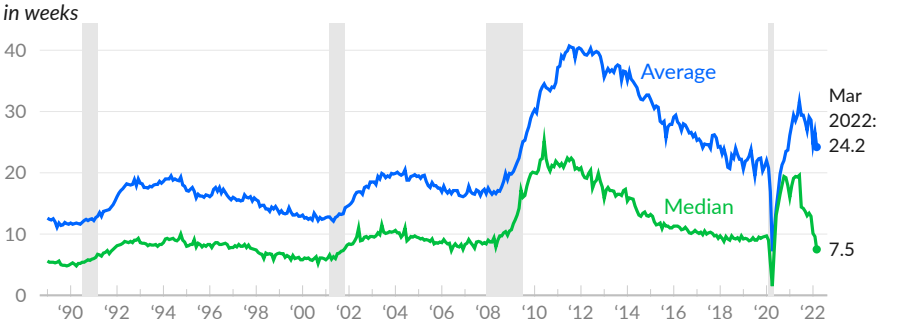
unemployed 15+ weeks, share of population

Source: Bureau of Labor Statistics

Among those who are unemployed, the average (mean) duration of unemployment is 24.2 weeks (see —), and the typical (median) duration of unemployment is 7.5 weeks (see —), as of March 2022. Over the year prior to COVID-19, ending February 2020, the average duration of unemployment was 21.7 weeks and the typical duration was 9.3 weeks.

Duration of Unemployment

in weeks



Source: Bureau of Labor Statistics

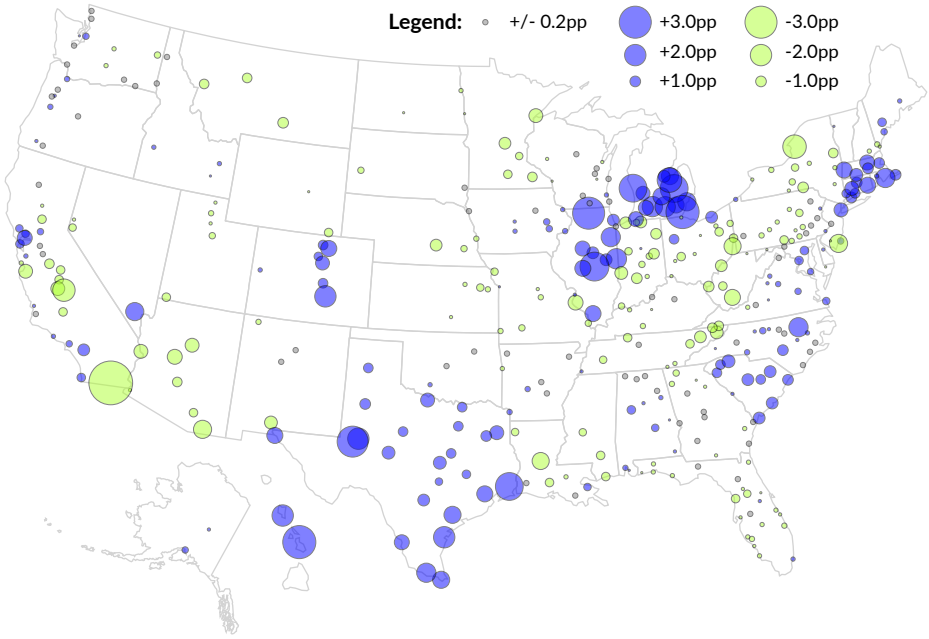
Unemployment by Metro Area

The Bureau of Labor Statistics produce local area estimates of unemployment, including the **unemployment rate for metro areas**. 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 February 2020 to February 2022, unemployment rates fell by 0.3 percentage point or more in 160 metro areas, and increased by 0.3 percentage point or more in 158 metro areas. Recent local unemployment rates were within 0.2 percentage points of their pre-pandemic level in 69 metro areas.

Change in Unemployment Rate by Metro Area

from February 2020 to February 2022, percentage points



Largest MSAs:

		Core City	Feb 22	Feb 20	Labor Force	Pct Ch*
+1.3	●	New York, NY	5.1	3.8	9,931,800	-0.9
+0.6	●	Los Angeles, CA	4.9	4.3	6,670,500	-2.2
+1.1	●	Chicago, IL	4.9	3.8	4,925,600	3.0
+0.9	●	Dallas, TX	4.1	3.2	4,209,400	4.7
+1.5	●	Houston, TX	5.3	3.8	3,498,200	1.2
+0.8	●	Washington, DC	3.6	2.8	3,374,300	-3.8
unch.	●	Atlanta, GA	3.2	3.3	3,223,000	2.7
+0.3	●	Philadelphia, PA	4.7	4.4	3,150,600	-0.4
+0.4	●	Miami, FL	3.0	2.6	3,145,300	-1.3
+1.0	●	Boston, MA	3.7	2.7	2,799,400	-0.1
-0.9	●	Phoenix, AZ	3.1	4.0	2,538,900	0.3

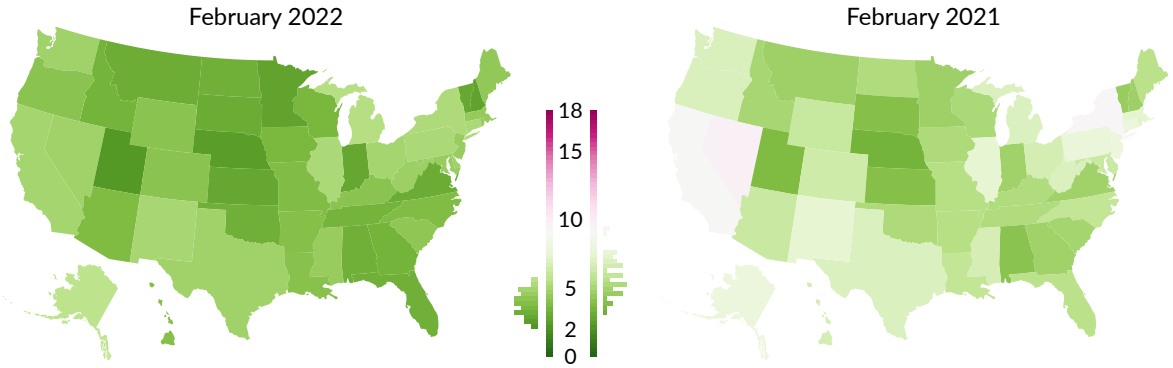
Source: Bureau of Labor Statistics; Full Table:
*Pct Ch is percent change in labor force from February 2020 to February 2022

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 February 2022, every state's unemployment rate was below eight percent, and four states had unemployment rates above five percent. Three months prior, in November 2021, no states had unemployment rates above eight percent, and four states had rates 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 February 2022 are Alaska (5.6%), the District of Columbia (5.6%), and Michigan (5.3%). The states with the lowest unemployment rates are Utah (2.1%), Nebraska (2.3%), and New Hampshire (2.5%).

Unemployment Rate by State
unemployed share of labor force, percent



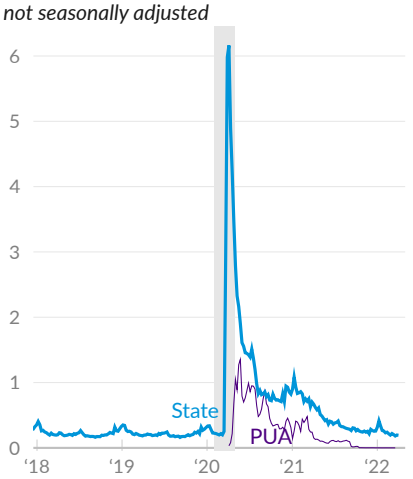
Source: Bureau of Labor Statistics

Jobless Claims

The Department of Labor report 193,137 actual **new claims for unemployment insurance** (UI) under state programs (see —) during the week ending April 2, 2022, a one-week decrease of 3,700. Over the past four weeks, new claims have averaged 194,000 per week. During the same four-week period last year, there were an average of 687,600 new claims per week.

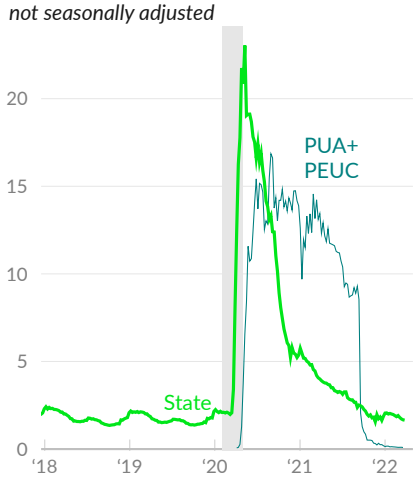
For the week ending March 26, 2022, the Department of Labor reports 1,650,788 continued claims for unemployment insurance (insured unemployed) under state programs (see —), a one-week decrease of 20,400. One year prior, during the week of March 27, 2021, there were an average of 4,002,000 insured unemployed.

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.

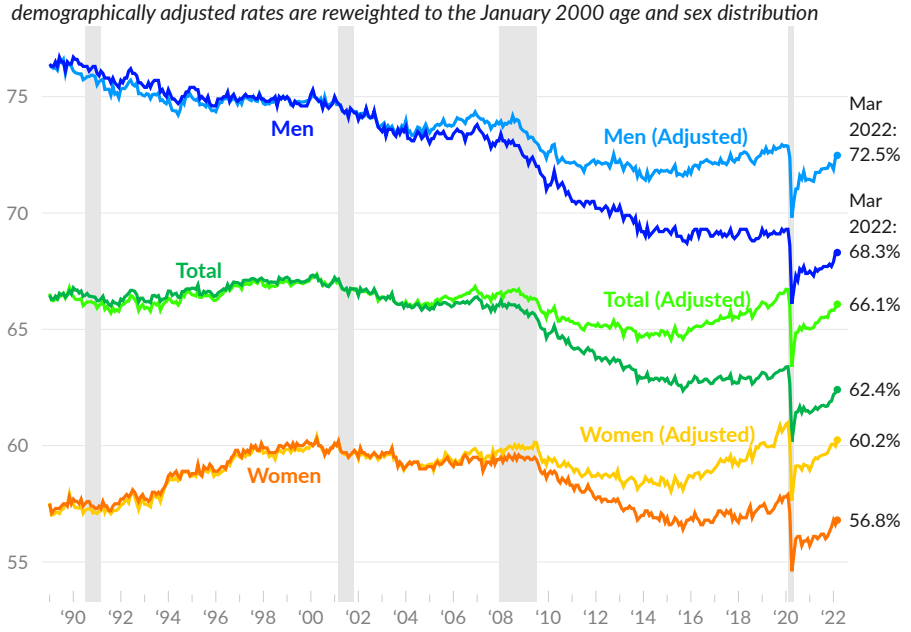
Over the past two decades, the age composition of the population has lowered labor force participation rates, all else equal. Reweighting the population to match the age composition in 2000 suggests the aging of the US population since 2000 has reduced total labor force participation by 3.7 percentage points.

In the latest data, covering March 2022, 62.4 percent of people age 16 and older are in the labor force (see —), compared to 62.3 percent in February and 62.2 percent in January. In February 2020, when US confirmed cases of COVID-19 were still low, the labor force participation rate was 63.4 percent.

In March 2022, 68.3 percent of men age 16+ are in the labor force (see —), compared to 56.8 percent of women (see —). Since February 2020, labor force participation has decreased one percentage point 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

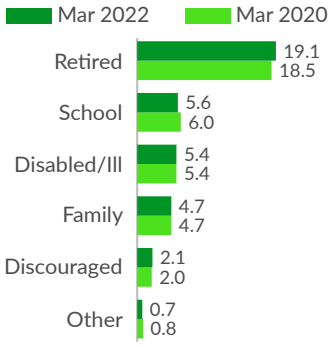


Sources: BLS (Latest: March 2022); CPS (Latest: March 2022)

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 aged 16 and older total 99.2 million in March 2022, and make up 37.6 percent of the age 16 or older population, compared to 37.3 percent in March 2020. About half of nonparticipants, and 19.1 percent of the population, are retirees in March 2022 (see ■), compared to 18.5 percent percent in March 2020 (see ■).

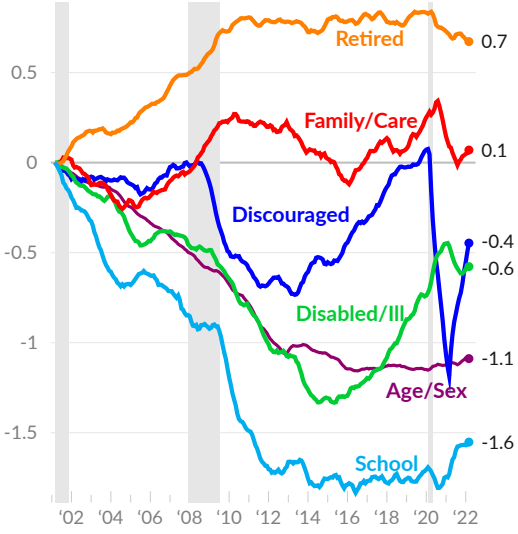
Disability or illness keeps an additional 5.4 percent out of the labor force in March 2022, compared to 5.4 percent in March 2020. Students who are out of the labor force make up 5.6 percent in March 2022 and 6.0 percent in March 2020, while unpaid caregivers are 4.7 percent in March 2022 and 4.7 percent in March 2020.

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 March 2022, an additional 3.1 percent of the age 18–64 population left the labor force. Changes in the demographic composition of the population affect the rate of participation. For example, the larger-than-normal population cohort born after World War II is reaching retirement age in this period. Changes in the age and sex distribution within the age group explain 1.1 percentage points of the cumulative decrease in participation since March 2001 (see —).

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

Contribution to Labor Force Participation
cumulative percentage point contribution to age 18-64 labor force participation rate since March 2001



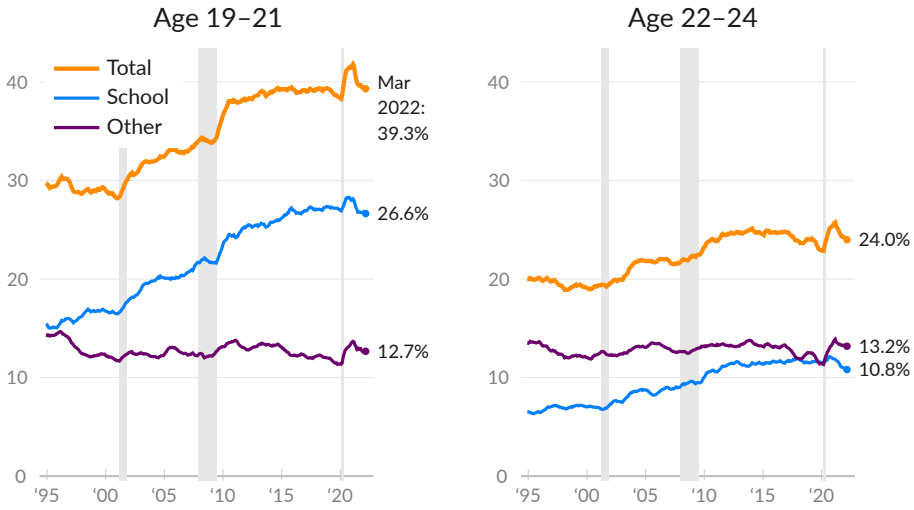
Source: Author's Calculations from CPS

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

Young people's participation in the labor market, by working or looking for work, is affected by trends in educational attainment and by economic conditions. From 1994 to 2000, labor force participation among young people increased slightly. Following the recession of 2001, and carrying through the great recession, participation rates dropped sharply. From 2000 to 2014, 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 March 2022, the rate of non-participation is 39.3 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

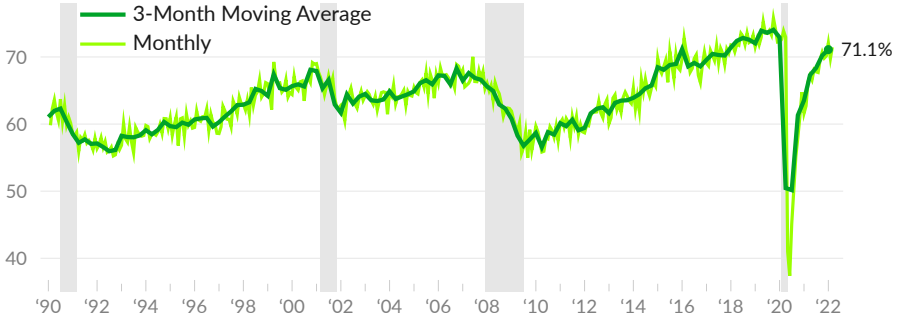
Labor Force Flows

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 March 2022, 6.6 million people were newly employed (on a gross basis). Of these, 71.4 percent were not looking for work in the prior month (see —). Over the past three months, an average of 71.1 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 March 2019, 71.8 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



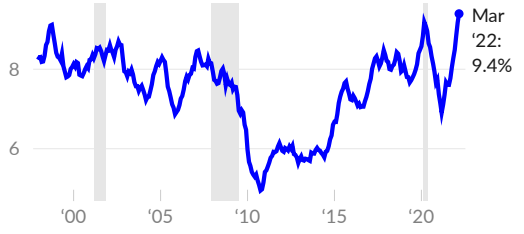
Source: Bureau of Labor Statistics

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 March 2022, 9.4 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

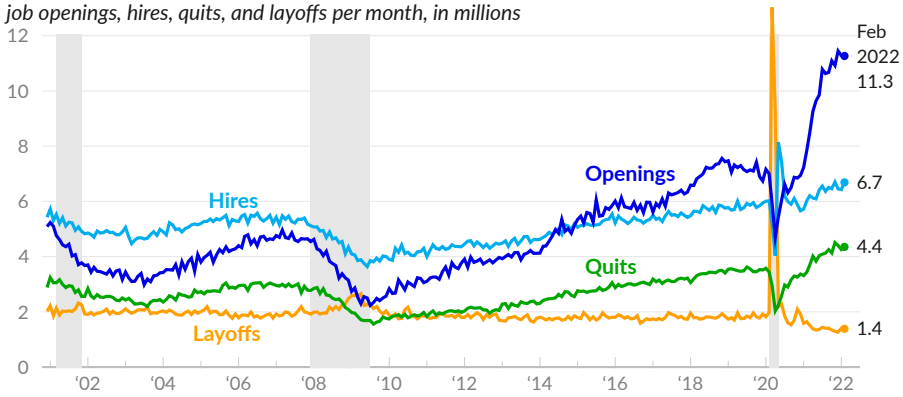
Job Openings and Labor Turnover Survey

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 February 2022, there were 11.3 million total nonfarm job openings (see —) and 6.7 million hires completed (see —). In the same month, there were 6.1 million nonfarm separations, including 1.4 million layoffs (see —), 4.4 million quits (see —), and 355,000 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

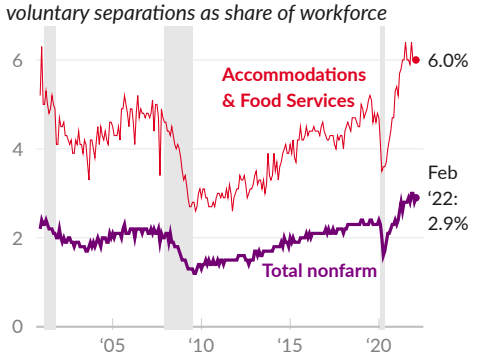


Source: Bureau of Labor Statistics

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

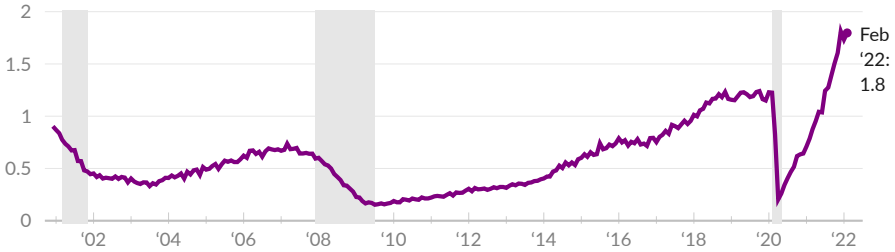
The quits rate is cyclical within the accommodations and food services industries (which includes restaurants), and tends to rise when a tight labor market pulls people out of restaurant jobs and into higher paying jobs in other industries.

In February 2022, the total quits rate in all industries was 2.9 percent (see —). The accommodations and food services quits rate was 6.0 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 February 2022, there were 6.3 million unemployed people and 11.3 million job openings, therefore the ratio of job openings per unemployed person was 1.8 (see —). In January 2022 the ratio was 1.7, and during 2019 the average ratio was 1.2.

Job Openings Per Unemployed Person

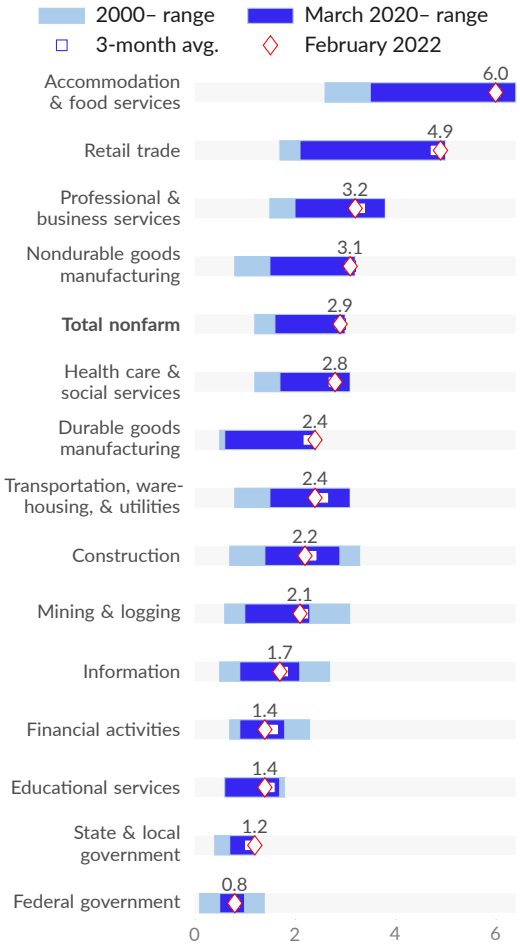
job openings divided by total unemployment



Source: Bureau of Labor Statistics

Monthly Quits Rate by Industry

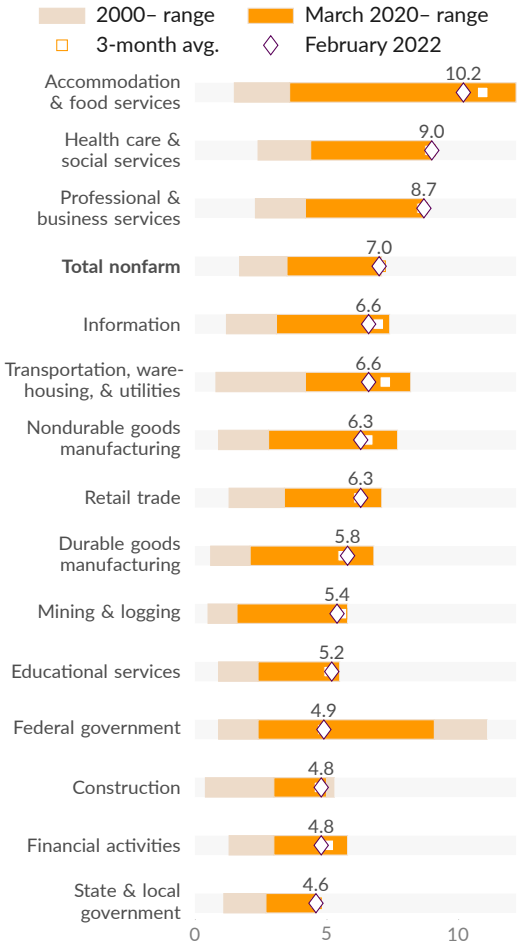
share of employment, percent



Source: Bureau of Labor Statistics

Monthly Job Openings Rate by Industry

share of employment, percent



Source: Bureau of Labor Statistics

Job Switching

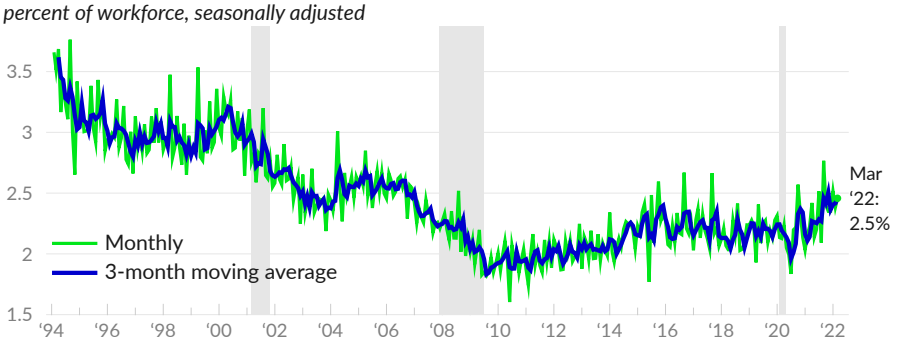
Job switching is important for getting people into the jobs where they are most productive. Individuals boost labor productivity by switching to a more productive industry or moving from a less-productive firm to a more-productive firm.

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 March 2022, 2.5 percent of the workforce had a different employer than the previous month, after seasonal adjustment (see —). Smoothed data also show an average of 2.5 percent of the workforce with a new employer during the three months ending March 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

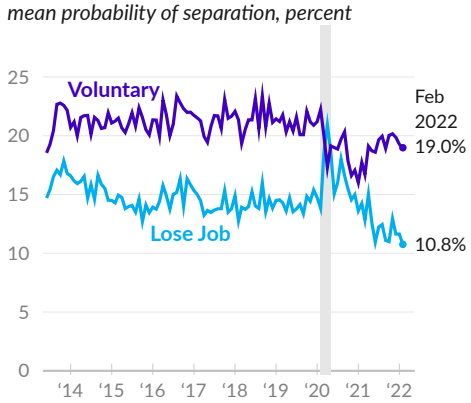
The monthly Survey of Consumer Expectations from the Federal Reserve Bank of New York asks people how likely they are to either lose or leave a job. **Expected separations** are specifically the average perceived probability, or likelihood, of separating from a job in the next 12 months.

In February 2022, the perceived likelihood of leaving one's job voluntarily in the next 12 months averages 19.0 percent, compared to 21.0 percent in 2019 (see —). In the latest month, the perceived probability losing one's job is 10.8 percent, compared to 14.3 percent in 2019 (see —).

During the pandemic, in April 2020, job loss expectations exceeded job leaving expectations. In February 2022, job leaving expectations exceed job loss expectations by 8.2 percentage points, compared to 6.8 percentage points in 2019.

Expected Separations

mean probability of separation, percent



Source: Federal Reserve Bank of New York

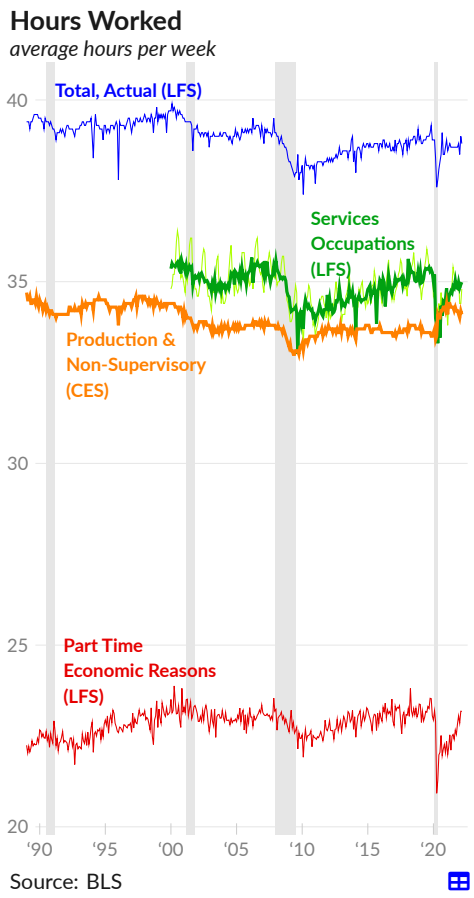
Hours Worked

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 38.8 in March 2022 (see —) in line with the 38.9 average actual hours worked in February 2020. Average actual hours for this group average 39.6 from 1998 through 2000, and fell to a great recession low of 37.4 in February 2010.

Those in service occupations (see —) work fewer hours on average, with 35.0 average weekly hours in March 2022, slightly below the 35.2 average in February 2020. Those part-time for economic reasons (see —) work an average of 23.2 hours per week in March 2022.

In March 2022, production and non-supervisory workers (see —), about four of every five employees, worked 34.1 hours per week on average, slightly above 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

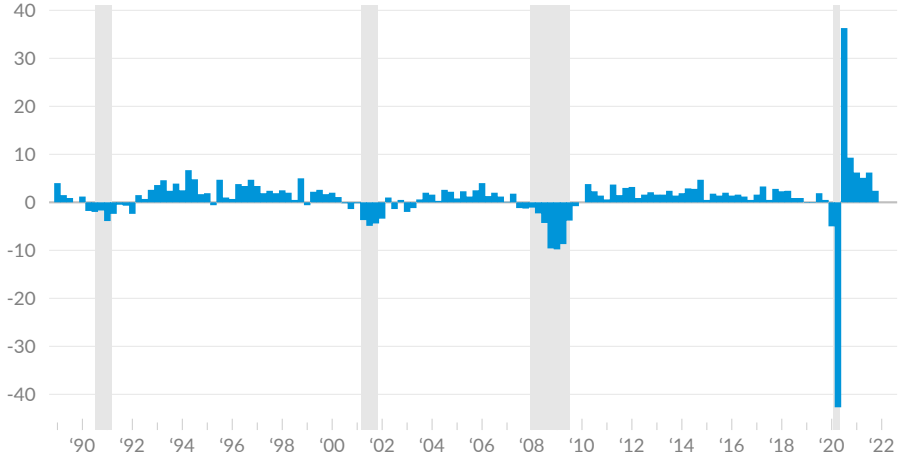
	Mar '22	Feb '22	Jan '22	Mar '21	Feb '21	Jan '21	Mar '20
Total Actual, CES	34.6	34.7	34.6	34.9	34.6	35.0	34.1
Total Actual, LFS (—)	38.8	39.0	38.5	38.7	38.6	38.9	38.4
Total Usual, CPS	38.8	38.8	38.7	38.7	38.7	38.8	38.6
Production & Non-Supervisory, CES (—)	34.1	34.2	34.0	34.4	34.1	34.4	33.4
Services Occupations, LFS (—)	35.0	34.9	34.8	34.6	34.3	34.8	34.0
Part-time for Economic Reasons, LFS (—)	23.2	23.2	22.9	22.2	22.0	22.3	22.9

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 2.4 percent in 2021 Q4, following an increase of 6.2 percent in 2021 Q3. From 2017 through 2019, total hours worked increased at an average rate of 1.4 percent. Since 2019, hours worked have decreased by a total of 0.4 percent.

Aggregate Hours Worked

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



Source: Bureau of Labor Statistics

Nonstandard Work Arrangements

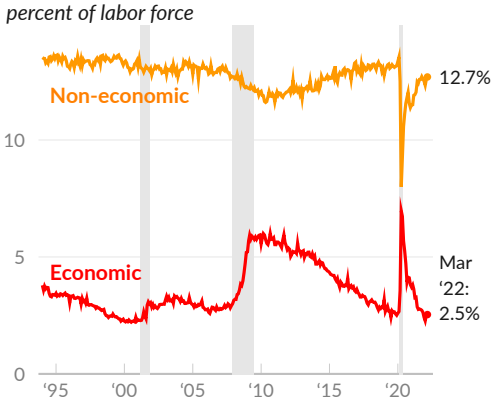
Many workers do not have standard work arrangements, either by choice or as the result of not being able to find standard work arrangements. Many workers work part-time, part-year, or both. Some workers have more than one job. Additionally, a portion of the workforce is considered self-employed.

Part-time Work

Many people work 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 want full-time jobs. 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

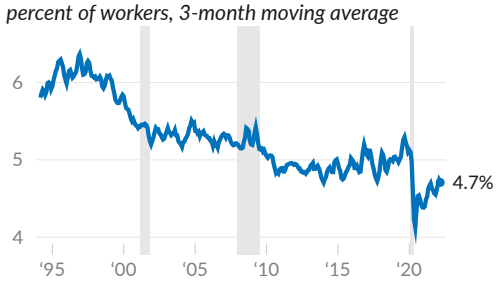
In March 2022, 4.2 million people worked part-time for economic reasons, equilvalent to 2.5 percent of the labor force (see —). In 2019, an average of 2.7 percent of the labor force worked part-time for economic reasons; in 2010, following the great recession, the rate was 5.8 percent.

Voluntary part-time workers total 20.9 million in March 2022, or 12.7 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

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

Multiple Jobholders
percent of workers, 3-month moving average



Source: Bureau of Labor Statistics

In March 2022, a seasonally-adjusted total of 7.4 million people **worked more than one job** during the survey reference week, equivalent to 4.7 percent of workers. Over the three months ending March 2022, an average of 4.7 percent of workers were multiple jobholders (see —). In 2019, 5.1 percent of workers had more than one job during the survey reference week.

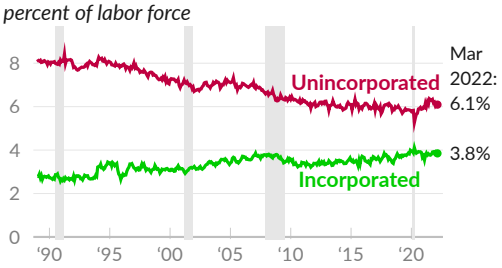
Self-employment

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 March 2022, there are 10.0 million **unincorporated self-employed**, equivalent to 6.1 percent of the labor force (see —). Over the past year, the unincorporated self-employed made up an average of 6.2 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 6.3 million in March 2022, equivalent to 3.8 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.

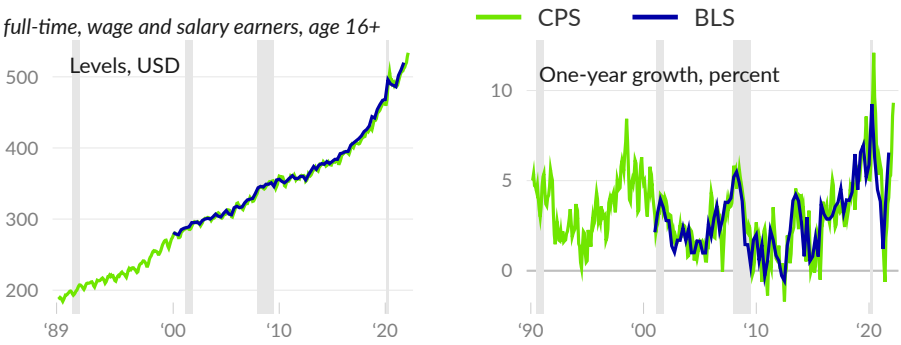
Wages

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 2021 Q4 show nominal first decile usual weekly earnings of $520, compared to $488 in 2020 Q4, resulting in one-year growth of 6.6 percent. In the previous quarter, 2021 Q3, first decile usual weekly earnings grew by 4.1 percent over the year. Author's calculations from the CPS (see —) show three-month moving average first decile usual weekly earnings of $534 in March 2022, $529 in February 2022, and $488 in March 2021. One-year growth was 9.3 percent for the three months ending March 2022, 8.6 percent for the three months ending February 2022, and 6.5 percent for the three months ending January 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

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

Source: Bureau of Labor Statistics

Weekly Earnings Growth

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

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

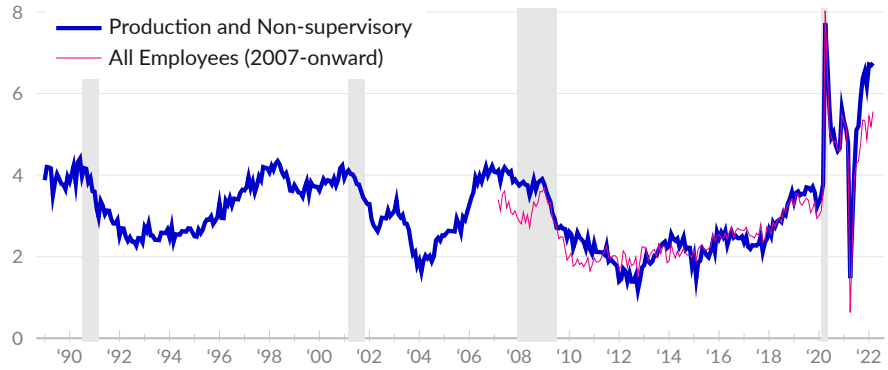
Source: Bureau of Labor Statistics

Nominal Hourly Wages

Over the year ending March 2022, nominal wages increased by 5.6 percent for all employees (see —) and increased by 6.7 percent for production and non-supervisory workers (see —), according to the Bureau of Labor Statistics. Comparing the latest three months to the previous three months, nominal wages increased at an annual rate of 5.1 percent for all employees and increased at an annual rate of six percent for production and non-supervisory employees.

Average Hourly Earnings

nominal one-year growth, percent

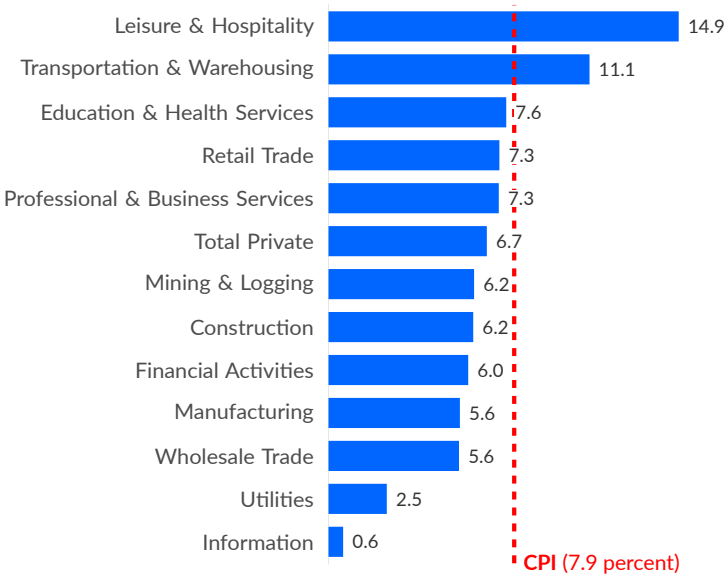


Source: Bureau of Labor Statistics

By industry, 2 of 12 groups experienced real wage growth (wage growth above the increase in prices indicated by the consumer price index). The leisure & hospitality industry had the fastest nominal growth rate, at 14.9 percent, followed by 11.1 percent in transportation & warehousing and 7.6 percent in education & health services.

Average Hourly Earnings Growth by Industry

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



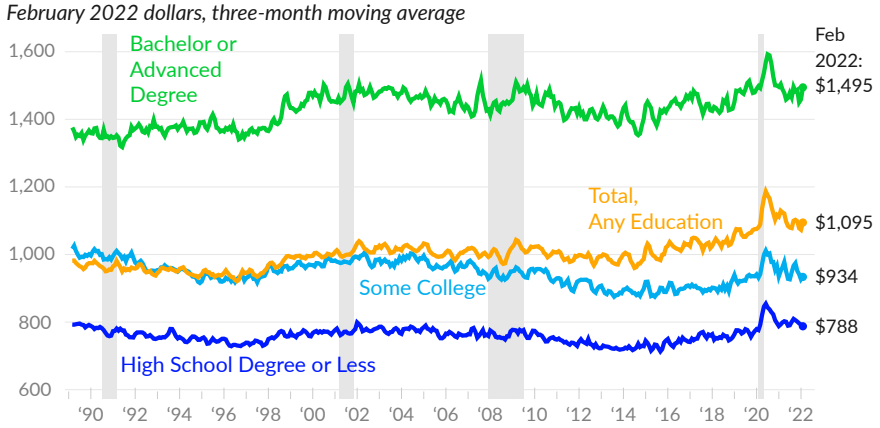
Source: Bureau of Labor Statistics

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 February 2022, the median usual earnings of full-time wage and salary workers age 25–54 averaged $1,095 per week. After adjusting for inflation, these earnings have increased by 11.5 percent, in total, since 1989. Digging deeper, the workforce is split into three groups by highest level of education attained. Real earnings increased 8.6 percent over the same period for workers with bachelor's degree or more, decreased 8.2 percent for workers with some college or an associate degree, and decreased 0.6 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 25–54
February 2022 dollars, three-month moving average

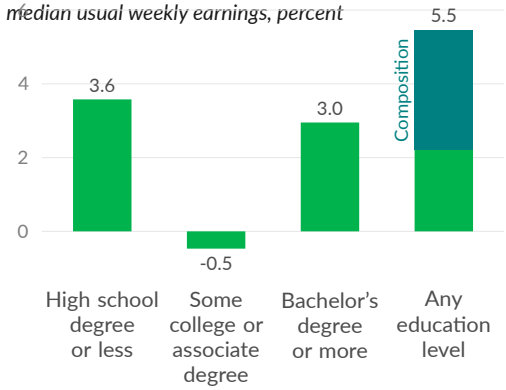


Source: Author's Calculations from Current Population Survey

Real wage growth is tied to changes in education, even in the short-term. While real wage growth since 2019 has been uneven, the majority of the overall increase can be explained by increases in the education level of the workforce.

Real Wage Growth Since 2019

median usual weekly earnings, percent



Total percent change in median usual weekly earnings from 2019 average to February 2022, by highest level of education. Full-time wage and salary workers age 25–54. Adjusted for inflation by regional CPI-U. Composition is the real wage growth explained by the increase in the education of the population.

Source: Author's Calculations from CPS

Since 2019, real wage growth was strongest for workers with a high school degree or less. The real wages of full-time wage and salary workers age 25–54 with a high school degree or less increased 3.6 percent, in total, from 2019 to February 2022 (see ■). Real wages of the equivalent group with a bachelor's degree or more increased three percent. Real wages decreased 0.5 percent for those with some college and no degree or an associate degree.

Combining the education groups, total real wage growth for full-time workers age 25–54 with any education level was 5.5 percent. Of this, 3.2 percentage points are explained by increases in the **education-level composition** of the overall group.

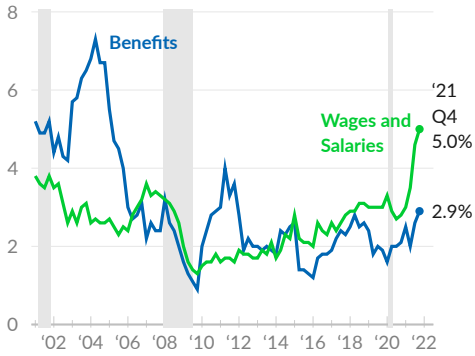
Employment Cost Index

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

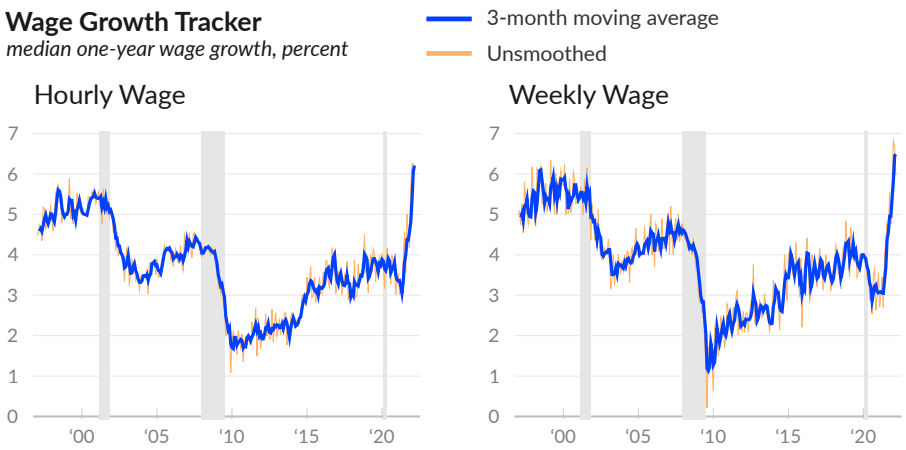
In the fourth quarter of 2021, private industry wage and salary costs increased by five percent (one-year percent change, see —), following an increase of 4.6 percent in 2021 Q3, and an increase of 3.5 percent in 2021 Q2. In 2019, private wages and salaries costs increased by three percent, on average.

The cost of private sector benefits increased by 2.9 percent (see —) over the year ending 2021 Q4, following an increase of 2.6 percent in 2021 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 changes in the wages of the same people over one year. This approach avoids some of the compositional changes that affect aggregate wage growth measures, though the sample used to calculate the data is affected by changes to respondents' employment status, and by survey response rates.

Replication of the wage growth tracker shows matched-observation hourly wage growth of 6.1 percent in March 2022 (see —), and average wage growth of 6.2 percent over the three months ending March 2022 (see —). One year prior, in March 2021, three-month moving average wage growth was 3.4 percent. Matched observation weekly wage growth, which is affected by changes in hours worked, increased six percent over the year ending March 2022 (see right chart).



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 March 2022, 11.0 percent of individuals had no hourly wage growth, compared to 11.3 in February 2022 (see —). One year prior, in March 2021, 13.6 percent of individuals had no wage growth.

Source: Author's Calculations

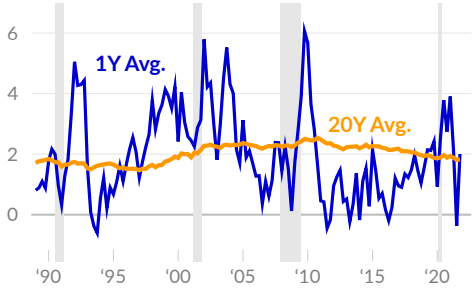
Labor Productivity

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 1.8 percent in 2021 Q4 (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 2021 Q4, productivity growth averaged 2.0 percent (see —).

Labor Productivity Growth

quarterly growth at annual rate, percent

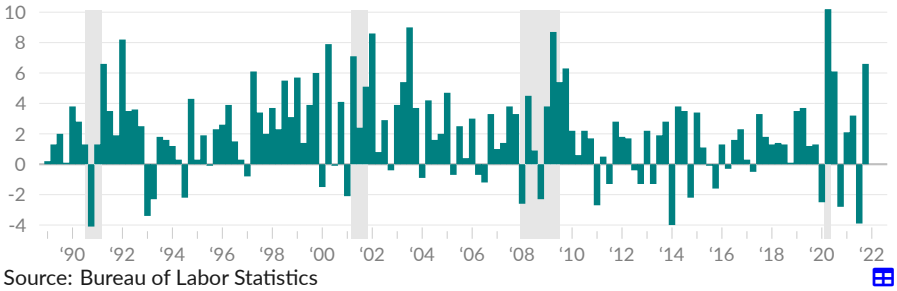


Source: Bureau of Labor Statistics

In 2021 Q4, labor productivity increased at an annual rate of 6.6 percent (see ■), as the result of an increase of 9.1 percent in real ouput and an increase of 2.4 percent in hours worked. In the prior quarter, 2021 Q3, labor productivity decreased at an annual rate of 3.9 percent, as real output increased two percent and hours of work increased 6.2 percent. Over the past five years, labor productivity growth has averaged 1.9 percent, slightly below the 1989-onward average of 2.0 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.

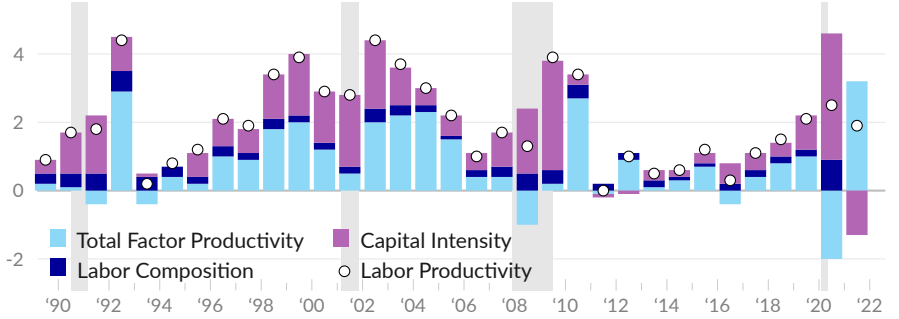
One theory of what drives long-term trends, sometimes called the *Kaldor-Verdoorn Law*, states that demand, and the capacity to meet that demand, determine productivity growth. An economy facing real resource constraints, where demand for goods and services exceeds the capacity to provide these services, 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 1.9 percent (see ○). Capital intensity subtracted 1.3 percentage points (see ■), and labor composition did not contribute (see ■). The remainder, called total factor productivity, was 3.2 percentage points (see ■).

Decomposition of Labor Productivity Growth

contribution to labor productivity, percentage points



Source: Bureau of Labor Statistics

Union Membership

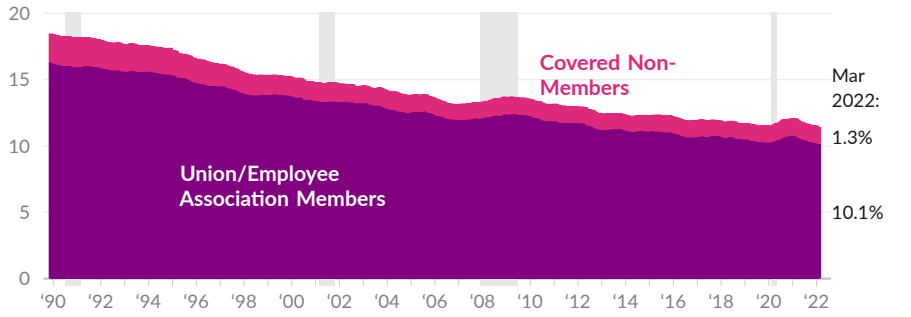
Membership in **unions and employee associations** has diminished in the United States over the past fifty years. Unionized jobs typically offer higher wages and better benefits and union membership tends to increase wages and benefits even in nonunion jobs. Many researchers argue that lower union membership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

Over the 12 months ending March 2022, the union membership rate averaged 10.1 percent (see ■). The coverage rate, which includes nonmembers that are covered under a union contract, was 11.4 percent. During the 12-month period, an average of 124.1 million workers were not represented by a union, 14.0 million workers were union members, and an additional 1.8 million workers, or 1.3 percent of the workforce, reported no union affiliation but were covered by a union contract (see ■).

One year prior, over the 12 months ending March 2021, the union membership rate was 10.8 percent, and the coverage rate was 12.1 percent. From March 2021 to March 2022, the 12-month average number of nonunion workers increased by 7.7 million, while the number of workers represented by unions increased by 32,000.

Union Membership and Coverage

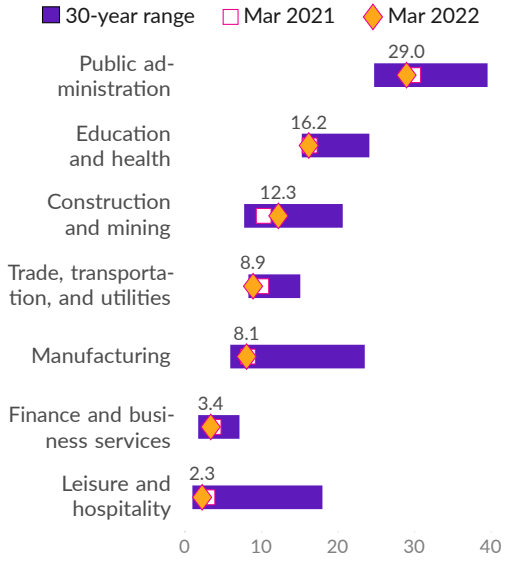
union or employee association share of jobs, percent



Source: Author's Calculations from Current Population Survey

Union Membership Rate by Industry

union or employee association member, percent



Source: Author's Calculations from CPS

Union membership rates vary substantially by industry. Public administration has the highest union membership rate, at 29.0 percent as of March 2022, followed by education and health with 16.2 percent, and construction and mining with 12.3 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 15.7 percentage points below its January 1989 rate of 18.0 percent.

The manufacturing industry union membership rate was 8.1 percent in March 2022, 8.3 percent in March 2021, and 9.0 percent in March 2020.

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.

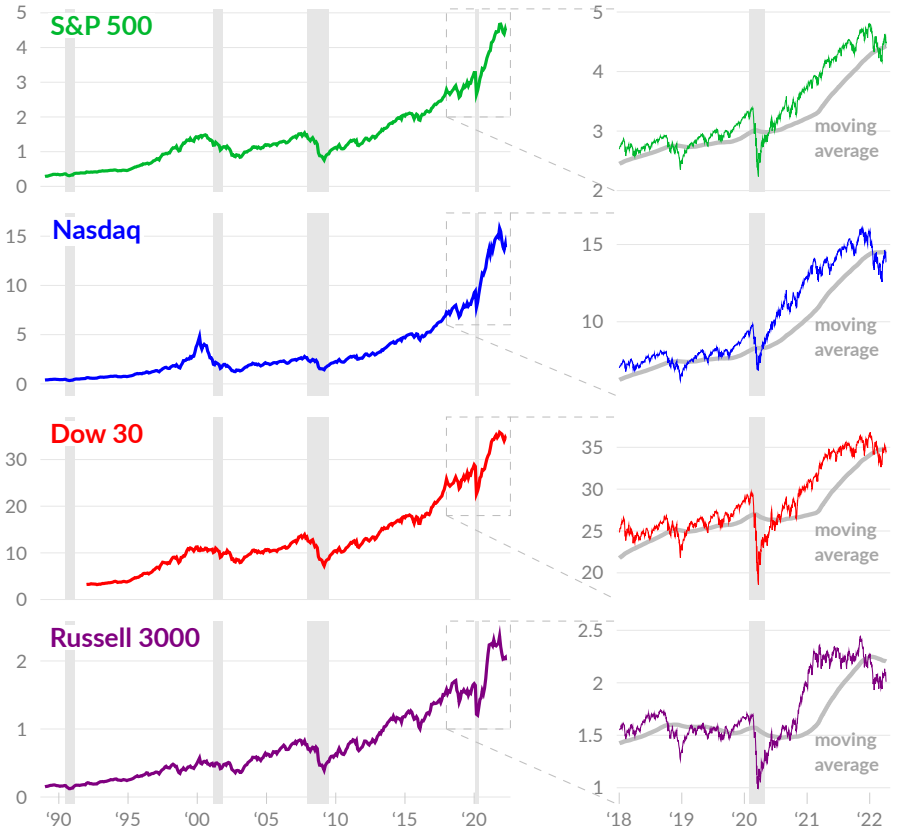
Equity Markets

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 — *2018–onward, in detail*



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 April 7, 2022, the S&P 500 has increased 209.2 percent since 2000, and increased 66.9 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 236.4 percent since 2000, and increased 98.3 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 204.5 percent since 2000 and increased 39.3 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 304.9 percent. Since 2018, the measure increased 29.7 percent.

Stock Market Indices

adjusted close *annual index returns, not including dividends*

	Apr 7, 2022	1-year moving average	2022 YTD	2021	2020	2019	2018	2017
— S&P 500	4,500	4,429	-5.6	26.9	16.3	28.9	-6.2	19.4
— Nasdaq	13,897	14,539	-11.2	21.4	43.6	35.2	-3.9	28.2
— Dow 30	34,584	34,842	-4.8	18.7	7.2	22.3	-5.6	25.1
— Russell 3000	2,010	2,204	-10.5	13.7	18.4	23.7	-12.2	13.1

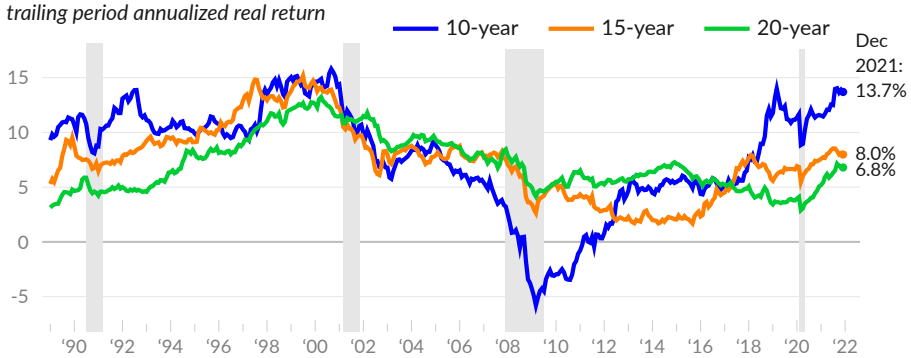
Source: Yahoo! Finance

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 6.8 percent as of December 2021 (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 13.7 percent, as of December 2021, 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 2021, the dividend yield for the S&P 500 was 1.29 percent (see —), compared to 1.29 percent in November 2021, and 1.58 percent in December 2020. 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

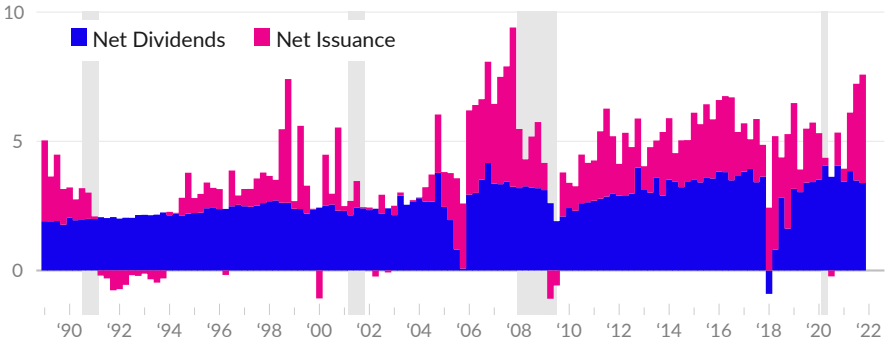
Source: Shiller

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 fourth quarter of 2021, nonfinancial corporation net dividends are equivalent to 3.4 percent of GDP (see ■) and net equities issuance is equivalent to 4.2 percent of GDP (see ■). In 2019, net dividends were 3.3 percent of GDP and net issuance was 2.1 percent. From 1990 to 2015, net dividends averaged 2.6 percent of GDP and net issuance averaged 1.3 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 a normal business cycle so that valuations are less-affected by the idiosyncrasies of current economic conditions.

In April 2022, the Shiller total return CAPE ratio was 39.4, compared to 37.9 in March 2022 and 40.2 in April 2021 (see —). In 2019, the Shiller CAPE ratio was 32.1, on average. In 2000, during the stock market bubble, the Shiller CAPE ratio was 45.1, on average.

Price to Earnings Ratio

10-year total return PE ratio

Source: Shiller

Volatility

The Chicago Board Options Exchange uses S&P 500 options data to identify expectations of future volatility. This volatility measure, the VIX index (see —), was 22.1 on April 6, 2022, in line with the average index value of 22.3 over the past three years. The VIX increased by 2.8 points over the past week.

S&P 500 Volatility Index

index, monthly average shown

Source: Chicago Board Options Exchange

Interest Rates

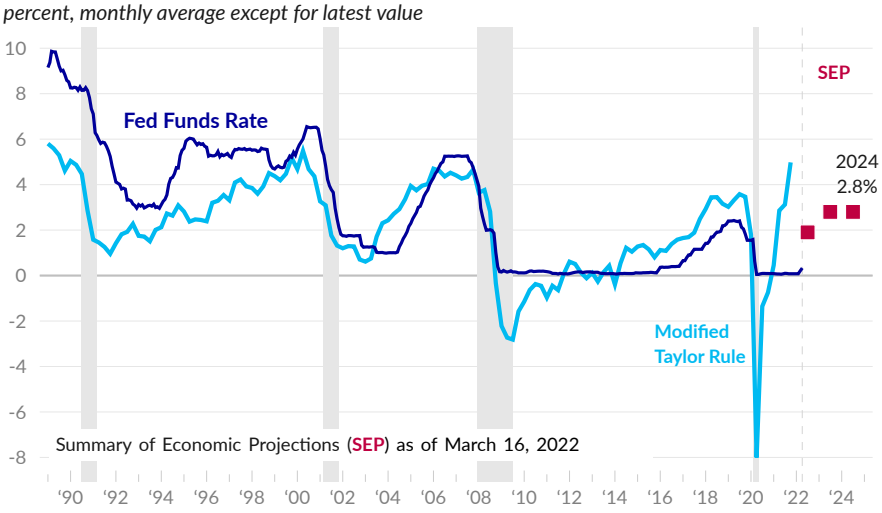
The US Federal Reserve System (Fed) has a congressional mandate to promote price stability and maximum employment. In practice, a Fed committee (the FOMC) determines the federal funds rate, which aims to influence interest rates in the broader economy. There are several channels through which interest rates affect broader economic activity, for example, lower interest rates stimulate investment in capital goods and the production of these capital goods employs people, who in turn spend their wages on other goods and services. 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. The effective fed funds rate is 0.33 percent, as of April 6, 2022 (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 2021, the modified Taylor rule suggests a federal funds rate of 5.0 percent, 4.65 percentage points 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 March 16, 2022, the median projected federal funds rate rate is 1.9 percent for 2022, 2.8 percent for 2023, and 2.8 percent for 2024 (see ■).

Real Interest Rates

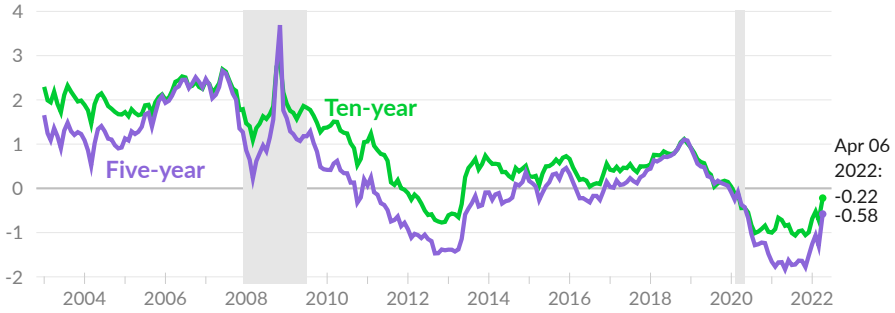
Lenders charger higher interest rates to compensate for expected inflation. Real interest rates, which are adjusted for expected inflation, can offer insight into economic and financial conditions. Low real interest rates encourage borrowing and consumption and increased economic activity while high 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 April 6, 2022, the real yield on ten year treasuries was -0.22 percent (see —), compared to -0.97 percent three months prior, on January 3. Five-year treasuries yield -0.58 percent in the latest data, and -1.58 percent three months prior, after adjusting for expected inflation (see —).

Real Treasury Yields

derived from inflation-indexed treasuries, percent



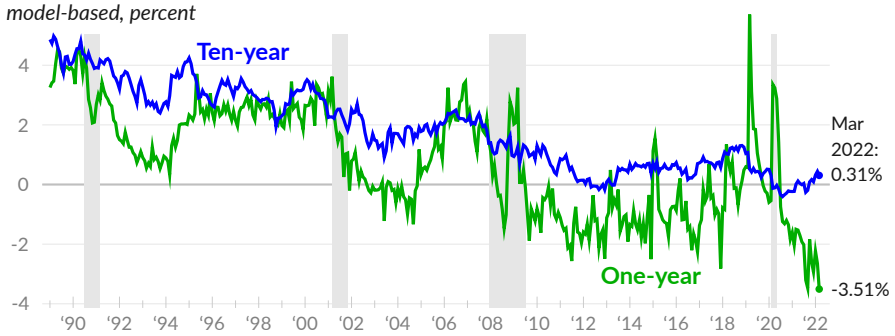
Source: Federal Reserve

The Cleveland Fed calculates real yields using a model based on treasury yields, inflation, and financial-market- and survey-based information. 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 and avoids some limitations of the previous approach.

The model-based real yield on ten-year treasuries is 0.31 percent, as of March 2022 (see —). Ten-year treasury real yields averaged 3.30 percent during the 1990s. The model-based real yield for one-year treasuries is -3.51 percent in March 2022, compared to an average of 2.21 percent during the 1990s (see —).

Real Treasury Yields

model-based, percent

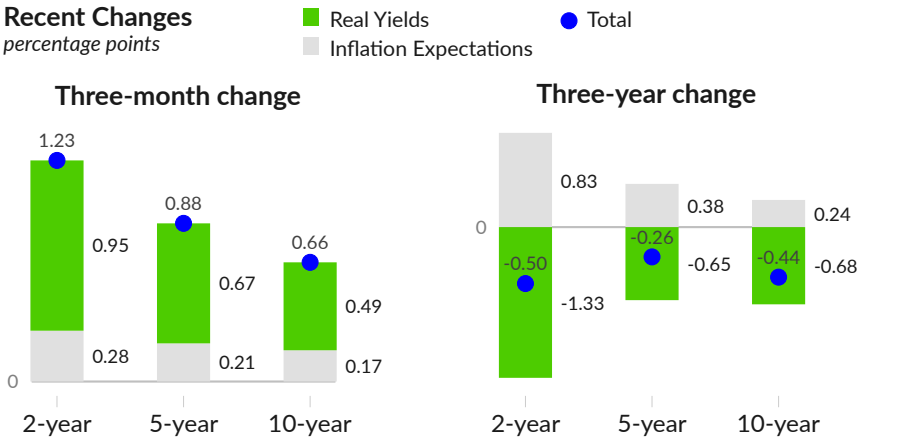


Source: Federal Reserve of Bank of Cleveland

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 March 2022, nominal two-year treasury yields increased 1.23 percentage points, real yields increased 0.95 percentage point, and inflation expectations increased 0.28 percentage point. Ten-year treasury nominal yields increased 0.66 percentage point, real yields increased 0.49 percentage point, and inflation expectations increased 0.17 percentage point.

Over the three years ending March 2022, the nominal yield on two-year treasuries decreased 0.50 percentage point, the real yield decreased 1.33 percentage points, and inflation expectations increased 0.83 percentage point. For ten-year treasuries, the nominal yield decreased 0.44 percentage point, the real yield increased 0.49 percentage point, and expected inflation increased 0.24 percentage point.



Latest data from model as of: March 2022
Source: Federal Reserve, Federal Reserve of Bank of Cleveland

Government Bonds

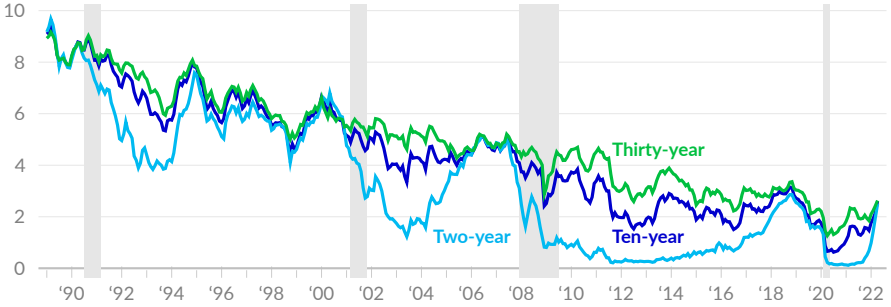
United States Treasury securities, or **treasuries**, are the asset created by federal government borrowing. The treasuries market is traditionally considered both very low risk and fairly liquid. The yield on these securities has fallen over time, from an average 10-year treasury bond annual yield of 8.5 percent in 1989 to an average of 0.62 percent in July 2020. As of April 6, 2022, the constant maturity yield for 10-year treasury bonds is 2.61 percent (see —), compared to 1.68 percent one year prior.

Longer-term treasuries follow the same trend. In April 6, 2022, 30-year treasuries yield 2.63 percent (see —), compared to 8.45 percent in 1989. Over the past year, 30-year treasury yields increased 0.3 percentage point.

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 2.3 percentage points, as the Federal Reserve is expected to raise interest rates. As of April 6, 2022, the annual yield on two-year treasuries is 2.5 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*

	Apr 6, 2022	Apr 5, 2022	Mar 31, 2022	Mar 2022	Apr 2021	2019	2010 –'13	1998 –'00	1989
One-month	0.21	0.18	0.17	0.18	0.02	2.12	0.07	–	–
Three-month	0.67	0.65	0.52	0.45	0.02	2.11	0.08	5.23	8.39
Six-month	1.15	1.13	1.06	0.86	0.04	2.11	0.13	5.38	8.48
One-year	1.79	1.77	1.63	1.34	0.06	2.05	0.20	5.42	8.53
Two-year	2.50	2.51	2.28	1.91	0.16	1.97	0.43	5.61	8.57
Three-year	2.67	2.69	2.45	2.09	0.35	1.94	0.70	5.62	8.55
Five-year	2.70	2.69	2.42	2.11	0.86	1.95	1.35	5.62	8.50
Seven-year	2.69	2.65	2.40	2.15	1.31	2.05	1.93	5.76	8.52
Ten-year	2.61	2.54	2.32	2.13	1.63	2.14	2.54	5.65	8.49
Twenty-year	2.81	2.74	2.59	2.51	2.20	2.40	3.33	6.05	–
Thirty-year	2.63	2.57	2.44	2.41	2.30	2.58	3.63	5.80	8.45

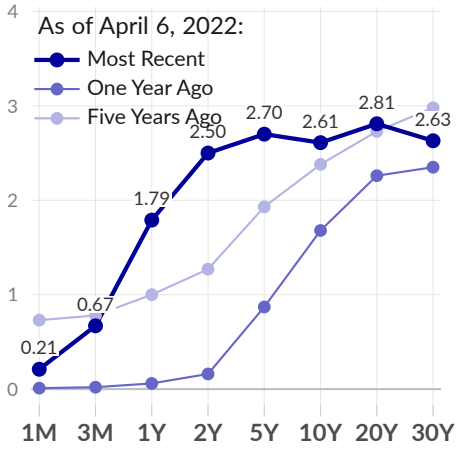
Source: Federal Reserve

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 April 6, 2022, the spread between a 10-year treasury bond and a three-month treasury bill is 1.94 percentage points (see —), compared to 1.66 percentage points one year prior. The spread between 10-year and 2-year treasuries (see —) is 0.11 percentage point on April 6, 2022, and 1.52 percentage points one year prior.

Treasury Yield Spreads

percentage points

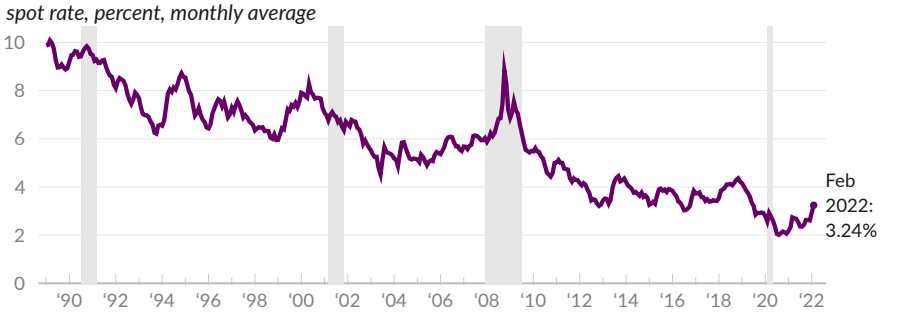
Source: Federal Reserve

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 3.24 percent in February 2022, following 2.93 percent in January 2022 (see —). One year prior, in February 2021, this spot rate was 2.32 percent, and two years prior, in February 2020, it was 2.57 percent.

High Quality Corporate Bonds, 10-Year

spot rate, percent, monthly average

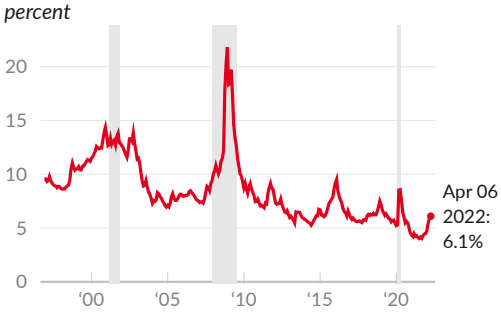


Source: Treasury

Corporate bonds rated below investment grade (a rating below BBB) are tracked by the ICE BofA high yield index. As of April 6, 2022, the effective yield for **high yield corporate bonds** in the index is 6.1 percent (see —). In March 2022, the average effective yield was 5.9 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



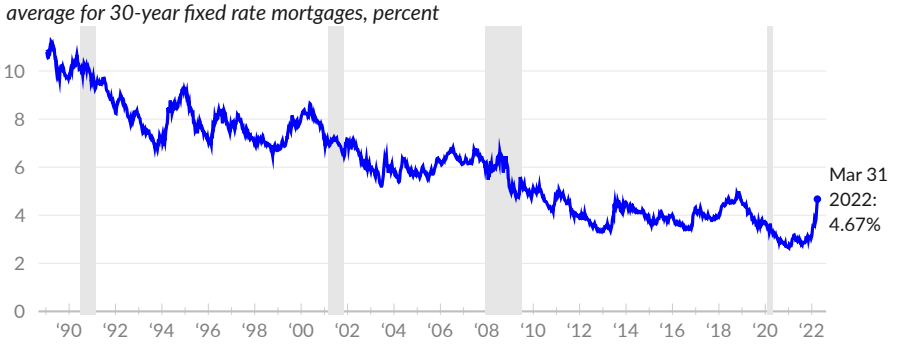
Source: Ice Data Indices

Mortgage Rates

The **mortgage rate** available to homebuyers can affect housing markets, which in turn can affect demand for other consumer goods. As of March 31, 2022, the average rate on a 30-year mortgage was 4.67 percent, compared to 3.22 percent on January 6, 2022, and 3.18 percent on April 1, 2021 (see —). In 2019, the average rate was 3.9 percent.

Mortgage Rate

average for 30-year fixed rate mortgages, percent



Source: Freddie Mac

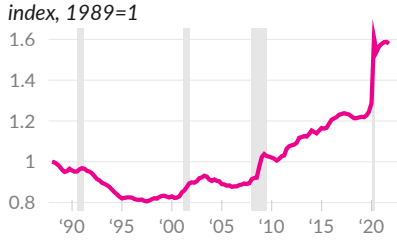
Money and Monetary Policy

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 February 2022, the M2 money stock totals $21.7 trillion. Put into the context of overall economic activity, M2 is equivalent to 89.3 percent of GDP in the fourth quarter of 2021. 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 57.9 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 10.9 percent over the year ending February 2022 (see —), compared to an increase of 11.9 percent over the year ending January 2022. The M2 money stock has increased 40.8 percent, in total, over the past two 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 U.S. Treasury bonds and mortgage-backed securities. Total assets held by the Federal Reserve (see —) increased from $0.9 trillion in August 2008 to $2.2 trillion in November 2008. Additional rounds of asset purchases, referred to as quantitative easing, increased the balance sheet to $4.5 trillion by January 2014. As bonds mature they were replaced until October 2017, when the Fed allowed the size of its balance sheet to normalize. Total assets fell below $3.8 trillion in August 2019.

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

Federal Reserve Balance Sheet

total assets, trillion of USD

Source: Federal Reserve

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

The Fed balance sheet increased from $4.2 trillion in February 2020 to $8.9 trillion, as of the latest data, covering March 30, 2022. The Fed currently holds $5.8 trillion in Treasuries and $2.7 trillion in mortgage-backed securities.

Federal Reserve Assets

billions of US dollars

	Mar 30, 2022	Mar 23, 2022	Mar 2, 2022	Mar 31, 2021	Apr 1, 2020
Total (see —)	8,937.1	8,962.5	8,904.5	7,689.0	5,811.6
U.S. Treasury securities	5,760.0	5,759.1	5,749.1	4,942.3	3,340.8
Mortgage-backed securities	2,715.2	2,738.8	2,691.4	2,184.7	1,457.7
Central bank liquidity swaps	0.2	0.3	0.2	2.5	348.5
Repurchase agreements	0.0	0.0	0.0	0.0	263.1
Loans	24.0	24.7	27.9	61.2	129.5
Payroll Protection Program	23.7	24.1	26.1	60.1	0.0
Net unamortized premium	323.2	324.5	327.6	341.5	202.8
Other	90.8	90.9	82.1	96.7	69.2

Source: Federal Reserve

Prices

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

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

Price Growth, Various Measures

12-month percent change

	Feb '22	Jan '22	Dec '21	Nov '21	Feb '21	Feb '20	'17–19 Avg.	'00–Avg.
CPI, All Items	7.9	7.5	7.0	6.8	1.7	2.3	2.1	2.3
CPI, ex. Food & Energy	6.4	6.0	5.5	4.9	1.3	2.4	2.1	2.1
PPI, All Commodities	20.1	19.8	20.4	22.7	7.1	-1.3	2.6	3.1
Imports Price Index	10.9	10.7	10.3	11.8	3.0	-1.3	1.6	1.9
Exports Price Index	16.6	15.0	14.9	18.1	5.4	-1.4	1.6	1.8
PCE, All Items	6.4	6.0	5.8	5.6	1.6	1.9	1.8	1.9
PCE, ex. Food & Energy	5.4	5.2	4.9	4.7	1.5	1.9	1.8	1.8
PCE, Trimmed Mean	3.6	3.5	3.0	2.8	1.7	2.1	1.9	2.0

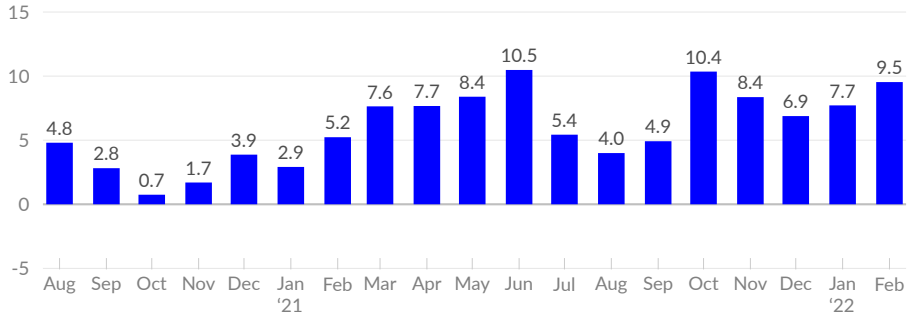
Source: BLS, BEA, Federal Reserve Bank of Dallas

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

While the chartbook uses less-volatile 12-month inflation rates in most cases, the **one-month rate** can be more useful for examining short-term trends, for example by eliminating the base effects from changes in prices a year ago. In February 2022, the annualized one-month change in the consumer price index was 9.5 percent (see ■), following 7.7 percent in January 2022.

CPI One-Month Change

monthly percent change, annualized



Source: Bureau of Labor Statistics

Consumer Price Index

Consumer prices increased 7.9 percent over the year ending February 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 6.4 percent over the same one-year period (see —).

Consumer Price Index

annual growth, percent, not seasonally adjusted

Source: Bureau of Labor Statistics

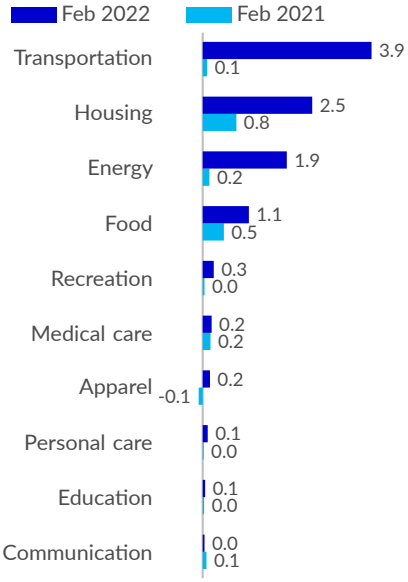
Recent changes in prices can be broad-based, that is derived from many prices changes at roughly the same rate, or narrow-based and driven by large changes in a subset of prices. Identifying each major spending category's contribution to overall inflation gives insight into whether inflation is broad-based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

In February 2022, transportation prices contributed 3.9 percentage points to the CPI one-year inflation rate of 7.9 percent, far above the category's February 2021 contribution of 0.1 percentage point. Housing prices added 2.5 percentage points to February 2022 inflation, far above the year-prior contribution of 0.8 percentage point. Energy prices increased the inflation rate by 1.9 percentage points in the latest data, compared to 0.2 percentage point in February 2021. The energy category makes up 7.3 percent of the CPI basket, but accounts for 24.5 percent of February 2022 inflation.

Food prices increased the inflation rate by 1.1 percentage points in February 2022, substantially above the year-prior contribution of 0.5 percentage point. Medical care prices make up 8.5 percent of the CPI basket and contributed 0.2 percentage point to overall inflation in the latest data, in line with a contribution of 0.2 percentage point one year prior.

Contribution of Major Categories

percentage points, not seasonally adjusted



Source: Bureau of Labor Statistics

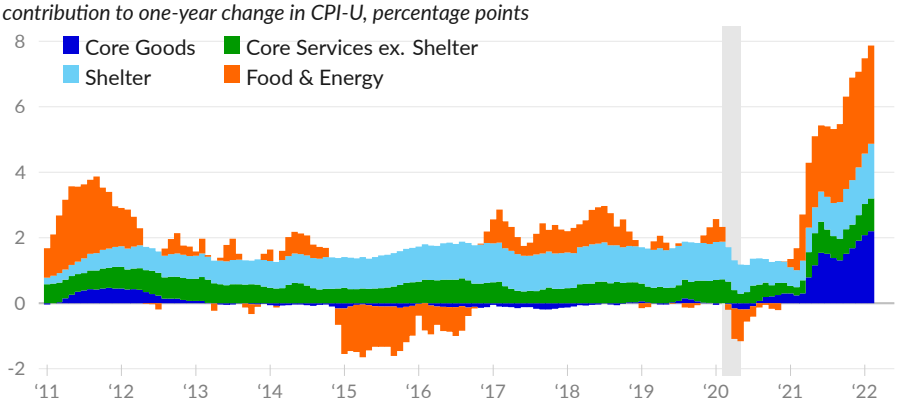
The prices of some items are more volatile than others. Food and energy prices, for example, are sometimes separated from the rest of the CPI basket, which is referred to as the *core*, because swings in food and energy prices are larger and more frequent.

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 February 2022, core goods contributed 2.2 percentage points to the one-year non-seasonally-adjusted CPI inflation rate of 7.9 percent (see ■), while core services excluding shelter contributed one percentage point added three percentage points (see ■). One year prior, in February 2021, the corresponding CPI inflation rate was 1.7 percent; core goods contributed 0.2 percentage point, core services excluding shelter contributed 0.2 percentage point, shelter contributed 0.5 percentage point, and food and energy added 0.7 percentage point.

CPI Decomposition

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



Source: Bureau of Labor Statistics, Author's Calculations

Relative Prices

Some categories of spending are a small part of the overall price basket used to calculate the CPI, but have seen large cumulative increases in prices. Additionally, the price basket is based on averages across individuals, with some individuals dedicating a much larger share of spending to certain categories and other individuals have no expenses in certain categories. 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.

The following section and table cover one-year inflation rates for different categories of goods and services, including some smaller categories. The table also shows the cumulative change in prices for each category 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 5.9 percent over the year ending February 2022, far above the pre-COVID rate of 2.9 percent (the average monthly rate during 2019). Medical care prices increased 2.4 percent, these prices grew at an average rate of 2.8 percent during 2019. In contrast, prices of food consumed at home (groceries) increased 8.6 percent in the year ending February 2022 compared to 0.9 percent during 2019.

Transportation prices increased 21.1 percent over the year ending February 2022, far above the pre-COVID 0.3 percent decrease. Energy prices increased 25.6 percent in the latest month, compared to an average 2.1 percent decrease in 2019. Energy prices are historically more volatile than other categories.

Selected CPI Categories

one-year percent change

	Feb '22	Jan '22	Dec '21	Feb '21	2019	Since Feb '20	Weight, Feb '22
All items	7.9	7.5	7.0	1.7	1.8	9.7	100.0
Housing	5.9	5.7	5.1	1.8	2.9	7.9	42.207
Owners' equivalent rent	4.3	4.1	3.8	2.0	3.3	6.4	24.035
Rent of primary residence	4.2	3.8	3.3	2.0	3.7	6.2	7.345
Lodging away from home	25.1	20.5	23.9	-14.9	3.0	6.4	0.939
Household furnishings & ops.	9.7	9.0	7.4	2.6	1.8	12.6	4.818
Household energy	13.4	14.7	11.6	3.4	-0.4	17.2	3.586
Transportation	21.1	20.8	21.1	0.6	-0.3	21.8	18.349
New vehicles	12.4	12.2	11.8	1.2	0.4	13.7	4.067
Used cars and trucks	41.2	40.5	37.3	9.3	1.0	54.3	4.167
Gasoline (all types)	38.0	40.0	49.6	1.5	-3.5	40.1	3.883
Public transportation	8.3	4.0	2.4	-16.2	0.3	-9.2	0.794
Medical care	2.4	2.5	2.2	2.0	2.8	4.5	8.449
Professional services	1.5	2.6	3.3	3.9	1.1	5.5	3.542
Hospital and related services	3.4	3.6	3.3	2.7	2.1	6.2	2.562
Health insurance	4.1	1.7	-1.2	1.0	14.5	5.2	0.828
Food	7.9	7.0	6.3	3.6	1.9	11.8	13.405
Food at home	8.6	7.4	6.5	3.5	0.9	12.5	8.234
Food away from home	6.8	6.4	6.0	3.7	3.1	10.7	5.171
Full-service	7.5	7.1	6.6	2.9	3.2	10.6	2.398
Limited-service	8.0	8.0	8.0	6.3	3.1	14.8	2.529
Recreation	5.0	4.7	3.3	0.8	1.3	5.8	5.115
Communication	1.1	1.2	1.3	2.2	-0.9	3.4	3.662
Wireless telephone services	-0.4	-0.5	-0.3	4.3	-2.5	3.9	1.559
Internet services	2.8	2.6	2.6	-0.3	1.5	2.5	0.950
Education	2.1	2.1	2.0	1.2	2.7	3.3	2.635
College tuition and fees	2.0	1.9	1.8	0.4	2.9	2.4	1.466
Day care and preschool	2.8	2.7	2.7	1.7	2.8	4.6	0.633
Apparel	6.6	5.3	5.8	-3.6	-1.3	2.8	2.551
Personal care	5.2	4.3	3.4	1.0	1.3	6.3	2.219

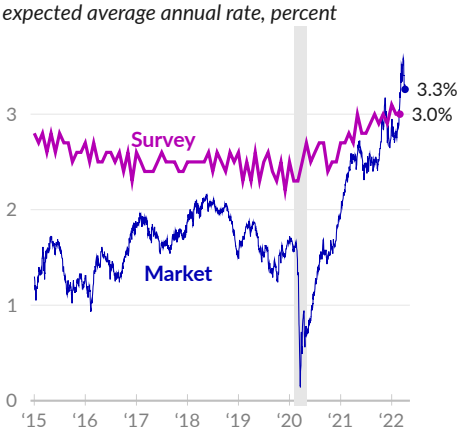
Source: Bureau of Labor Statistics

Inflation Expectations

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

5-year Expected Average Inflation

expected average annual rate, percent



Source: FRED; U. of Michigan

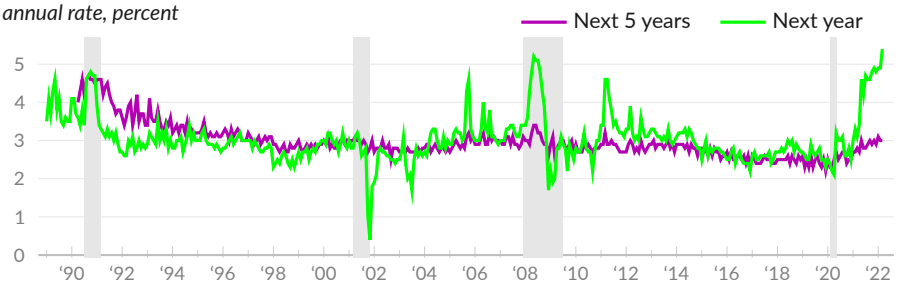
As of March 2022, surveyed consumers expect an average inflation rate of 3.0 percent over the next five years, (see —), compared to an expected rate of 2.8 percent in March 2021. Consumers had expected inflation to average 2.4 percent over the past five years, while actual inflation over the period was 2.6 percent.

As of April 7, 2022, markets expect an average inflation rate of 3.3 percent over the next five years (see —), compared to an expected rate of 2.5 percent on April 8, 2021. Markets had expected inflation to average 1.7 percent per year over the past five years, five years ago.

Both survey- and market-based estimates of expected inflation offer techniques for distinguishing between near-term inflation and expected medium-term inflation. The survey-based measure asks about inflation over the next year. Respondents expect consumer prices to increase 5.4 percent over the year starting March 2022 (see —).

Survey of Expected Inflation

annual rate, percent



Source: University of Michigan

Market Expected Inflation

annual rate, percent

Source: FRED

The market-based measure can be used to calculate expected inflation over the five years starting five years from now. Over this five-year period, markets suggest 2.4 percent inflation per year. Inflation rates in the near-term are therefore expected to exceed inflation rates in the longer-term

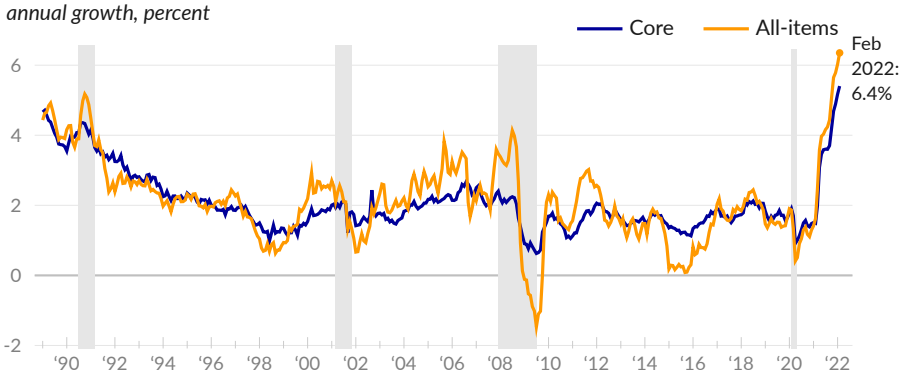
PCE Price Index

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 February 2022, **PCE inflation**, measured as the one-year percent change in the overall index, is 6.4 percent (see —), compared to 6.0 percent in January 2022, and 1.6 percent in February 2021. Core PCE inflation, which excludes food and energy, was 5.4 percent in February 2022 (see —), 5.2 percent in January 2022, and 1.5 percent in February 2021.

Personal Consumption Expenditure Price Index

annual growth, percent



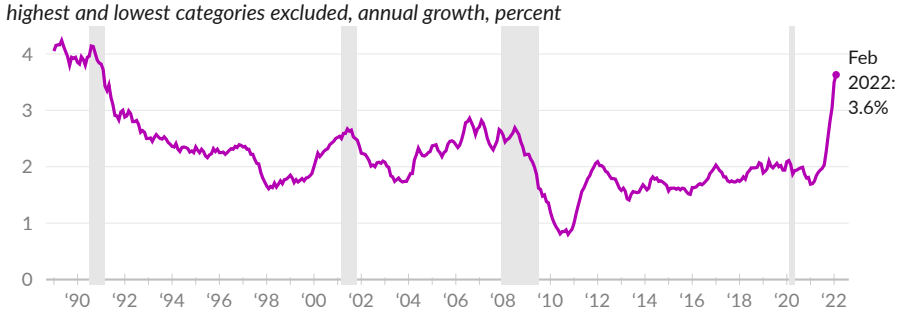
Source: Bureau of Economic Analysis

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 3.6 percent over the year ending February 2022 (see —). By excluding top and bottom categories, the trimmed-mean rate was 2.7 percentage points below the all-items PCE rate. In January 2022, the **trimmed-mean inflation rate** was 3.5 percent, 2.5 percentage points 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, annual growth, percent



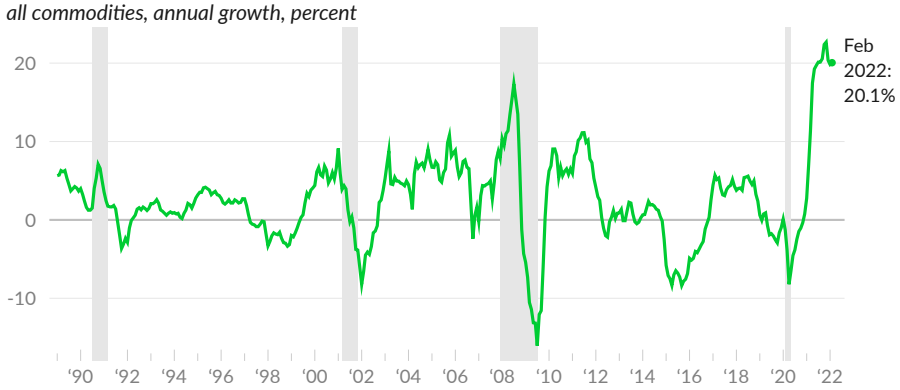
Source: Federal Reserve Bank of Dallas

Producer Prices

The Bureau of Labor Statistics report **prices producers receive** for the various goods and services they produce. The producer price index for all commodities (see —) increased 20.1 percent over the year ending February 2022, far above the 12-month growth rate of 7.1 percent in February 2021. Over the past three years, producer prices increased by 5.5 percent per year, on average.

Producer Price Index

all commodities, annual growth, percent



Source: Bureau of Labor Statistics

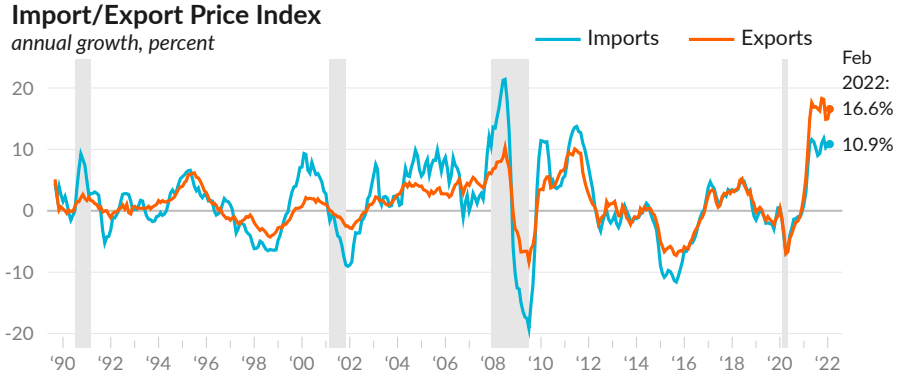
Import and Export Prices

The Bureau of Labor Statistics report changes in the prices of imports and exports. Over the year ending February 2022, **US import prices** grew 10.9 percent (see —), following an increase of 10.7 percent in January and 10.3 percent in December 2021. Excluding fuels, US import prices increased 7.2 percent in February 2022 and grew 6.8 percent in January. 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 16.6 percent over the year ending February 2022, compared to 15.0 percent in January, 14.9 percent in December 2021, and 1.5 percent on average during the three years ending February 2020.

Import/Export Price Index

annual growth, percent



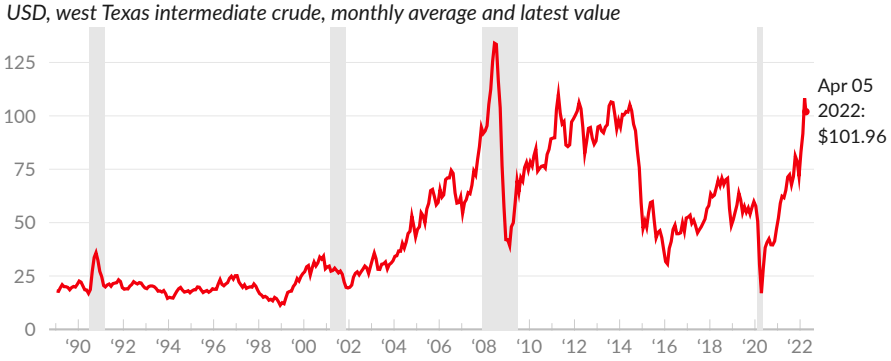
Source: Bureau of Labor Statistics

Commodity Prices

As of April 5, 2022, the benchmark futures price for a barrel of west Texas intermediate (WTI) **crude oil** is $101.96 (see —). Over the past year, this measure of oil prices increased 65.2 percent. Over the past two years, the price increased 500.7 percent. The WTI price is currently $32 per barrel 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

As of April 7, 2022, one troy ounce of **gold** sells for $1,926.40 (see —), compared to an average of $1,758.80 per ounce one year prior, during April 2021. 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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