US Chartbook

v0.0, September 24, 2019

Notes

Very early stage draft

Contents not considered reliable until version 1.0 is released.

Contact

Brian Wilson Dew
brian.w.dew@gmail.com
@bd_econ
bdecon

Contents

Ideas/Suggestions/To Do

For now, focus on filling out the content. Once around 1/3 of the content is in place (35 pages) start to look into ways to more efficiently create the document.

It will be nice to have a section showing the top five indicators: GDP growth, wages, epop, cpi inflation, 10-year treasury yields.

It will also be nice to have a section in that puts some context on numbers generally. The key example that I've tried to do before is to put a threshold on GDP growth that marks how much is needed for population growth and depreciation and then calculate how much one extra pp of growth (beyond the previous amount) is worth, per person. For example, if population growth is 0.6pp and depreciation is 0.8pp, then it would take 1.4pp to keep the same level of real per capita production. Beyond that, an extra percentage point of GDP might mean something like $900 per person in additional goods and services.

Overall Economic Activity

This analysis of the United States economy begins with the most popular measure of economic activity, Gross Domestic Product (GDP). According to the Bureau of Economic Analysis, GDP–the seasonally-adjusted annualized value of goods and services produced in the US–was $21,339 billion in the second quarter of 2019, compared to an inflation-adjusted equivalent of $10,209 billion in the first quarter of 1989.

The US population is growing by about sixth-tenths of a percent per year. GDP per capita (see —), adjusted for inflation to 2019 Q2 dollars, has increased to $64,834 in 2019 Q2 from $41,425 in 1989 Q1.

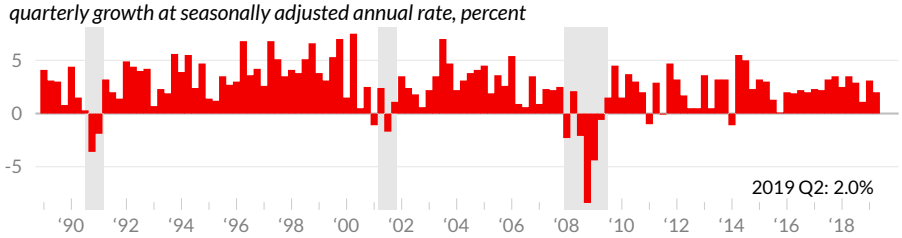
GDP per capita
in 2019 Q2 dollars

Source: Bureau of Economic Analysis

Economic Growth

GDP (see ■) increased at an annual rate of 2.0 percent during the second quarter of 2019, compared to an increase of 3.1 percent in the first quarter of 2019. Quarterly growth has averaged 2.5 percent over the past three years, 2.2 percent over the past 10 years, and 2.5 percent over the past 30 years.

Real Gross Domestic Product Growth
quarterly growth at seasonally adjusted annual rate, percent

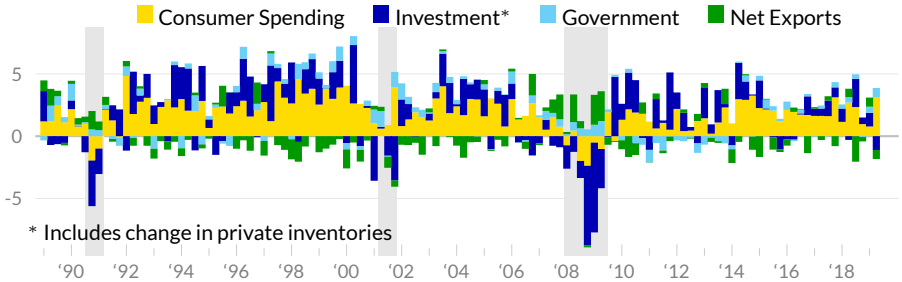


Source: Bureau of Economic Analysis

Components of Growth

The **expenditure approach** compiles GDP from the sum of spending on domestic goods and services. Major spending categories are consumer spending (see ■), private investment (gross spending on capital goods) and changes in private inventories (see ■), government spending and investment (see ■), and net exports (see ■) which is measured as foreign spending on US goods and services less US spending on goods and services produced by the rest of the world.

Real GDP Growth by Expenditure Type
percentage point contribution to GDP growth

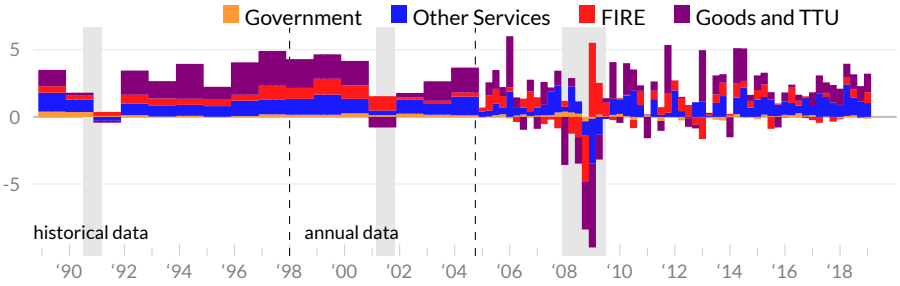


Source: Bureau of Economic Analysis

The **production approach** calculates GDP as the sum of gross value added–output minus inputs–in each sector. This identifies contributions from: goods-producing sectors combined with trade, transportation, and utilities (see), finance, insurance, and real estate (see), other service-providing sectors (see), and government (see).

Real GDP Growth by Industry Group

percentage point contribution to GDP growth

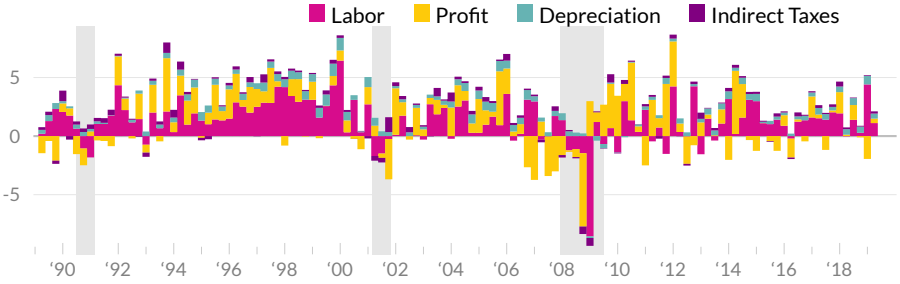


Source: Bureau of Economic Analysis

The **income approach** calculates GDP as the sum of market income to persons (in exchange for labor (see) or from returns on capital (see)), indirect taxes such as sales taxes or tariffs (see), and depreciation (see).

Real Gross Domestic Income Growth

percentage point contribution to GDI growth

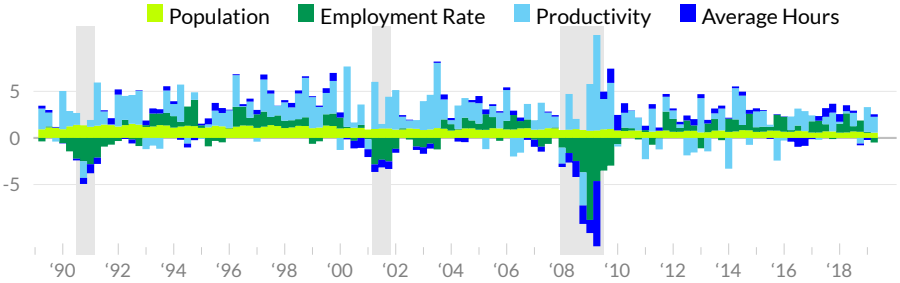


Source: Bureau of Economic Analysis

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

Real GDP Growth by Inputs

percentage point contribution to GDP growth



Source: Author's Calculations

Components of Economic Growth

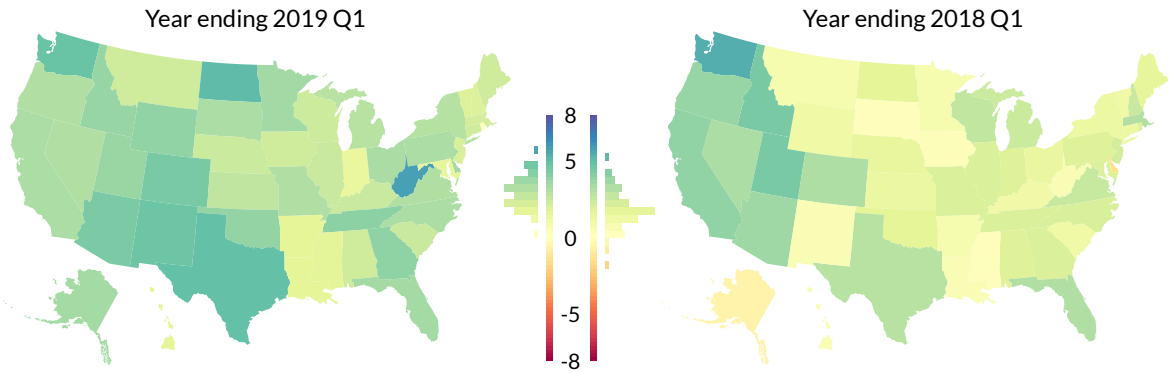
percentage point contribution to real GDP/GDI growth — *moving averages*

	2019 Q2	'19 Q1	'18 Q4	'18 Q3	'18 Q2	3-year	10-year	30-year
Gross Domestic Product	2.0	3.1	1.1	2.9	3.5	2.5	2.2	2.5
Consumer Spending	3.10	0.78	0.97	2.34	2.70	1.88	1.58	1.81
Durable Goods	0.87	0.02	0.09	0.25	0.56	0.44	0.42	0.42
Non-durable Goods	0.91	0.30	0.24	0.50	0.57	0.40	0.30	0.33
Services	1.32	0.46	0.65	1.59	1.57	1.03	0.85	1.06
Gross Investment	-1.11	1.09	0.53	2.27	-0.30	0.62	0.87	0.59
Residential	-0.09	0.60	0.64	0.29	1.04	0.60	0.58	0.54
Non-residential	-0.11	-0.04	-0.18	-0.16	-0.15	-0.01	0.11	0.03
Change in inventories	-0.91	0.53	0.07	2.14	-1.20	0.04	0.17	0.03
Government	0.77	0.50	-0.07	0.36	0.44	0.25	0.00	0.24
Federal	0.52	0.14	0.07	0.19	0.25	0.14	0.01	0.07
State and Local	0.25	0.36	-0.14	0.17	0.19	0.12	-0.00	0.17
Net Exports	-0.72	0.73	-0.35	-2.05	0.67	-0.25	-0.20	-0.15
Exports	-0.71	0.49	0.18	-0.78	0.71	0.27	0.48	0.51
Imports	-0.01	0.23	-0.53	-1.27	-0.04	-0.52	-0.67	-0.66
Goods and TTU	–	1.39	1.13	1.13	0.99	0.89	0.57	0.91
Manufacturing	–	0.51	0.32	0.31	0.26	0.32	0.15	0.33
Construction	–	0.00	-0.09	0.12	0.11	0.07	-0.00	-0.01
Retail Trade	–	0.63	-0.14	0.34	-0.06	0.24	0.13	0.20
FIRE	–	0.80	-0.07	0.59	0.55	0.21	0.48	0.47
Other Services	–	1.03	1.16	1.33	2.35	1.19	0.86	0.89
Education & Healthcare	–	0.51	0.16	0.24	0.34	0.24	0.18	0.19
Professional & Business	–	0.27	0.48	0.59	0.96	0.48	0.33	0.34
Information	–	0.25	0.47	0.41	0.70	0.41	0.29	0.26
Government	–	-0.14	-0.02	0.12	0.07	0.06	0.00	0.10
Population	0.57	0.55	0.66	0.70	0.59	0.64	0.72	0.98
Employment Rate	-0.49	0.10	1.21	0.56	2.05	0.63	0.30	0.02
Average Hours	0.27	-0.22	-0.19	0.24	0.64	0.12	0.15	0.02
Productivity	1.70	2.66	-0.60	1.43	0.23	1.10	1.08	1.47
Gross Domestic Income	2.1	3.2	0.8	3.3	0.7	2.0	2.4	2.5
Labor	1.11	4.41	0.28	1.39	-0.03	1.38	1.18	1.29
Profit	0.38	-1.95	-0.11	1.26	0.12	0.06	0.79	0.63
Depreciation	0.43	0.73	0.53	0.59	0.47	0.44	0.31	0.42
Indirect Taxes	0.19	0.06	0.07	0.05	0.15	0.15	0.15	0.17

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 2019 Q1, one state (West Virginia) had real GDP growth of more than five percent, 40 states had real GDP growth between two and five percent, 10 states had less than two percent GDP growth, and no states had negative GDP growth.

Real GDP Growth by State

quarterly growth at seasonally adjusted annualized rate | *total growth, 2019 Q1*

	2019 Q1	'18 Q4	'18 Q3	'18 Q2	'18 Q1	1-year	3-year	10-year
United States	2.2	4.2	3.4	2.2	3.1	3.2	8.3	23.4
Pacific	1.7	6.4	2.0	2.3	2.8	3.3	11.8	31.5
Washington	7.2	7.2	5.4	3.1	3.1	4.7	16.2	38.1
California	0.9	6.6	1.2	2.2	2.7	3.2	11.4	32.1
Oregon	2.0	3.6	4.2	1.3	3.1	3.1	12.1	27.7
Hawaii	0.0	2.4	1.6	1.1	1.2	1.6	4.7	16.1
Alaska	-5.7	1.7	2.9	4.9	3.9	3.4	0.2	-2.9
West South Central	2.4	4.1	2.5	5.6	4.7	4.2	6.7	26.7
Texas	2.4	4.5	3.3	6.6	5.1	4.9	8.3	34.0
Oklahoma	0.8	5.4	0.2	5.5	3.9	3.7	1.4	18.7
Arkansas	1.0	1.7	0.6	1.5	2.5	1.6	3.0	12.2
Louisiana	4.3	1.4	-0.1	1.3	3.8	1.6	2.0	-1.5
Middle Atlantic	1.2	4.1	2.8	1.2	3.1	2.8	6.9	20.2
New York	0.5	4.7	3.0	0.2	3.8	2.9	7.8	26.7
Pennsylvania	0.7	4.0	3.2	2.5	2.9	3.2	6.3	18.5
New Jersey	3.6	2.4	1.8	1.8	1.8	2.0	5.3	7.9
Mountain	2.7	4.0	4.8	3.3	3.8	4.0	10.0	20.0
Utah	5.9	3.7	4.7	1.8	4.2	3.6	12.2	32.8
Colorado	0.3	5.9	4.1	3.8	3.6	4.4	10.8	29.9
Idaho	2.0	5.6	3.6	2.7	2.7	3.6	12.5	21.6

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	2019 Q1	'18 Q4	'18 Q3	'18 Q2	'18 Q1	1-year	3-year	10-year
continued from previous page . . .								
Arizona	5.2	2.6	7.4	3.5	3.8	4.3	12.4	18.9
Montana	-0.4	3.2	1.4	1.3	3.2	2.2	2.4	15.0
Nevada	6.4	2.5	2.7	2.8	4.0	3.0	9.0	11.0
New Mexico	-1.1	4.3	5.5	4.1	4.6	4.6	4.7	7.6
Wyoming	-6.2	3.0	2.8	6.0	3.3	3.8	-0.2	-13.3
South Atlantic	2.0	3.2	4.7	1.7	2.7	3.1	8.4	18.6
Georgia	-0.5	2.6	7.6	2.1	3.1	3.8	10.6	24.2
South Carolina	1.4	2.5	3.2	1.6	2.5	2.4	7.6	21.2
Florida	4.1	1.4	7.2	2.0	2.9	3.4	10.3	20.8
Maryland	0.4	3.7	-0.9	1.2	1.8	1.5	6.9	18.5
District of Columbia	3.7	1.4	6.3	0.1	1.4	2.3	7.2	17.6
North Carolina	2.0	7.7	0.5	1.9	2.8	3.2	7.9	15.1
Virginia	2.9	2.9	4.9	1.5	2.7	3.0	6.4	14.7
Delaware	-1.2	0.8	9.0	0.0	3.9	3.4	0.6	13.8
West Virginia	-2.0	6.8	9.3	1.8	5.2	5.7	6.1	6.5
West North Central	0.9	6.4	1.5	1.4	2.7	3.0	4.7	17.0
North Dakota	0.5	9.6	3.2	3.5	3.9	5.0	-0.9	52.0
Nebraska	0.7	4.7	-0.8	2.2	3.4	2.4	3.5	25.8
South Dakota	4.6	2.4	4.5	2.1	3.6	3.1	1.2	22.7
Minnesota	0.1	7.6	2.5	1.1	2.6	3.4	7.5	20.4
Iowa	1.4	6.5	-0.2	0.3	2.3	2.2	2.1	19.7
Kansas	0.6	5.4	1.2	0.9	3.1	2.6	5.7	14.7
Missouri	1.4	6.2	1.8	1.8	2.3	3.0	4.6	5.0
East North Central	2.8	1.8	3.9	1.5	3.0	2.5	5.9	16.4
Ohio	0.2	3.1	4.9	1.4	3.5	3.2	5.8	18.8
Michigan	2.3	3.8	3.3	1.8	2.6	2.9	7.5	18.4
Wisconsin	4.9	1.6	2.4	2.1	2.9	2.3	6.4	17.3
Indiana	4.0	-0.4	1.9	0.9	2.9	1.3	6.5	14.8
Illinois	4.0	0.6	5.0	1.3	2.9	2.4	4.5	13.6
New England	3.6	0.6	3.3	1.7	2.5	2.0	5.2	15.1
Massachusetts	4.7	2.2	1.8	1.8	2.7	2.1	7.2	25.4
New Hampshire	6.4	-0.7	3.9	1.7	2.6	1.9	5.7	20.7
Vermont	0.9	4.0	-1.1	1.9	2.5	1.8	5.0	11.9
Maine	2.0	2.5	3.1	0.7	2.6	2.2	6.1	8.6
Rhode Island	1.3	3.2	-5.7	1.0	2.2	0.1	0.9	7.7
Connecticut	1.7	-3.6	9.0	1.8	2.2	2.2	1.8	-0.1
East South Central	0.3	4.5	3.0	1.6	2.4	2.9	6.3	14.4
Tennessee	0.6	6.6	5.2	1.6	2.4	3.9	8.9	23.6
Kentucky	-1.8	4.5	0.9	1.8	2.5	2.4	4.1	12.8
Alabama	1.2	2.2	1.8	2.1	2.7	2.2	5.8	10.6
Mississippi	1.3	2.2	2.0	0.5	1.9	1.7	2.8	0.0

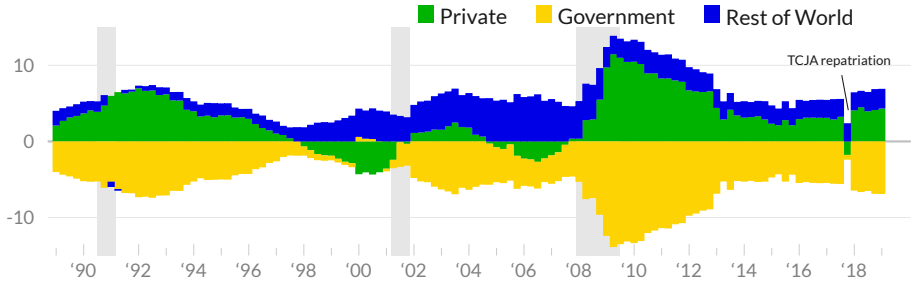
Source: Bureau of Economic Analysis

Financial Accounts

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

Sectoral Financial Balance

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



Source: Bureau of Economic Analysis

In 2019 Q1, the US private sector was a net lender (running a surplus) of the equivalent of 4.3 percent of GDP, compared to 2.3 percent in 2015 Q1. The rest of the world was a net lender to the US, to the equivalent of 2.6 percent of GDP in 2019 Q1 compared to 2.4 percent in 2015 Q1. Balancing these transactions, the government (federal, state, and local combined) was a net borrower (running a deficit) of the equivalent of -6.9 percent of GDP, compared to -4.7 percent in 2015.

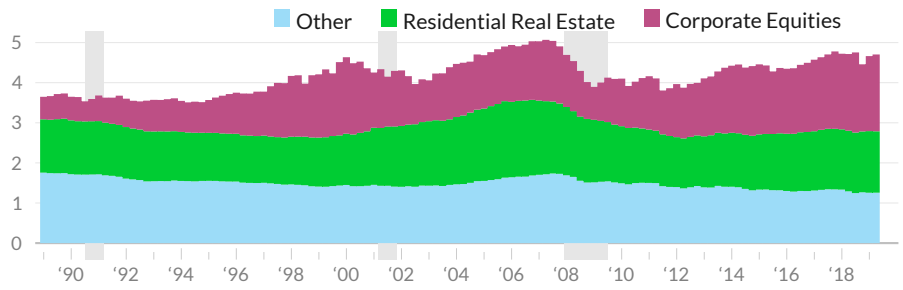
New borrowing by sector

Wealth

Total US wealth is the tangible assets of all non-corporate sectors of the US, plus the market value of domestic corporate equities, less US financial obligations to the rest of the world. The ratio of US total wealth, excluding public lands, to GDP increased to 4.7 in 2019 Q2 from 3.65 in 1989 Q1. The market value of corporate equities (see ■) increased to a 1.92 multiple of GDP in 2019 Q2 from 0.56 in 1989 Q1. The market value of residential real estate (see ■) increased to 1.53 times GDP from 1.33 in 1989. The other category (see ■), which includes tangible assets other than residential real estate less US financial obligations to the rest of the world, decreased to 1.26 from 1.76 in 1989.

Total US Wealth to GDP Ratio

total US wealth divided by GDP



Source: Federal Reserve

Households

This section covers the household sector of the economy loosely defined, and touches on demographics, personal income and outlays, residential fixed investment, household balance sheets, home ownership, housing prices, and housing construction and permitting.

[Table or chart on population]

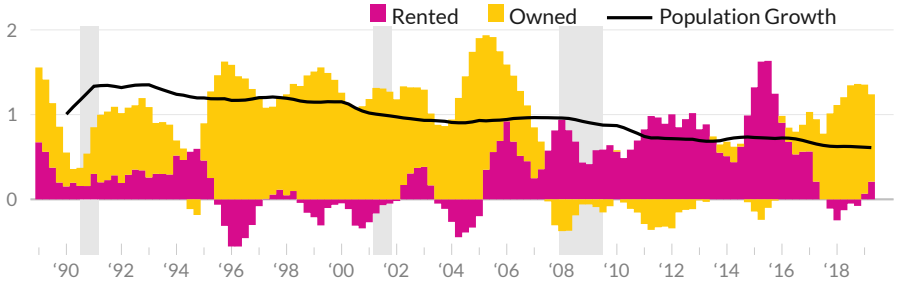
Demographics and Household Formation

The rate of household formation since 1989 can offer a high-level overview of some major demographic and economic developments. From 1989 to 1994,

This section should capture 1) population, 2) population growth, 3) aging, 4) increased education.

Household Formation by Type

one-year moving average of annual growth rates



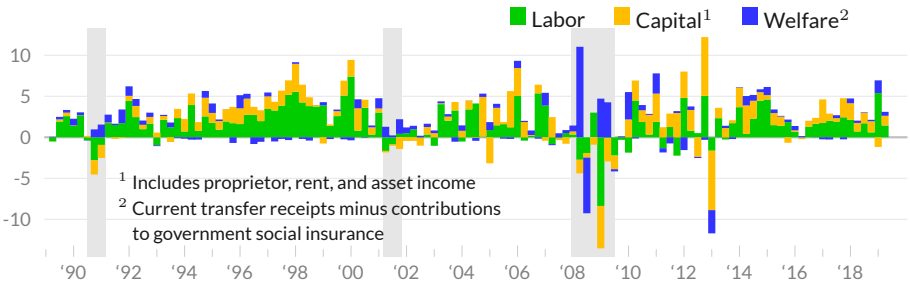
Source: Census Bureau

Income to Persons

This section looks at income received by people, by type of income, adjusted for inflation using the PCE implicit price deflator. Income is divided into labor income (see), which is 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), which is measured as transfers to persons less contributions to social insurance.

Personal Income

percentage point contribution to real personal income growth



Source: Bureau of Economic Analysis

[Gross Labor Income text and chart]

Capital Income

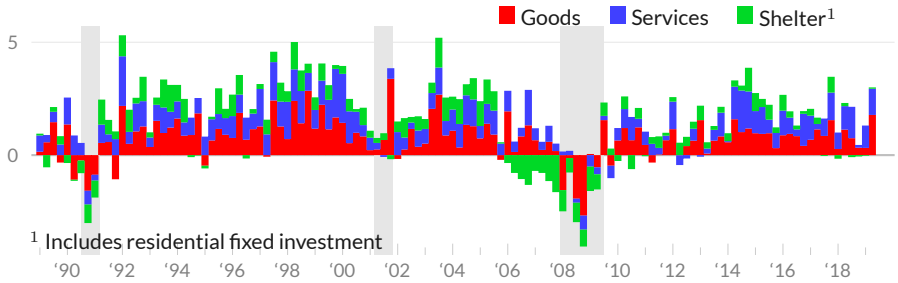
Welfare Income

Household Expenditures

This section covers household spending on goods (see ■), services excluding housing and utilities (see ■), and shelter (see ■ , calculated as housing services and utilities combined with residential fixed investment). These categories contribute 3.11 percentage points to GDP in 2019 Q2 compared to an average of 1.84 percent over the past three years.

Consumer Spending and Residential Investment

percentage point contribution to GDP growth



Source: Bureau of Economic Analysis

In the second quarter of 2019, household on spending on goods contributed 1.78 percentage points to GDP growth, household spending on services other than housing and utilities contributed 1.16 percentage points, and shelter spending and investment contributed 0.06 percentage points. Health care services contributed 0.36 percentage points in 2019 Q2 and have contributed 0.33 percentage points to GDP, on average, over the past three years.

Consumer Spending and Residential Investment

percentage point contribution to real GDP growth

	2019 Q2	'19 Q1	'18 Q4	'18 Q3	'18 Q2	*moving averages* 3-year	10-year	30-year
Total	3.11	1.32	0.56	2.21	2.46	1.84	1.53	1.72
■ Goods	1.78	0.32	0.33	0.75	1.13	0.85	0.73	0.75
Motor Vehicles and Parts	0.37	-0.27	0.07	0.01	0.18	0.11	0.12	0.08
Furniture and HH Equipment	0.14	0.03	-0.09	0.09	0.08	0.1	0.09	0.08
Recreational Durable Goods	0.31	0.23	0.04	0.12	0.17	0.18	0.16	0.21
Groceries	0.27	-0.08	0.07	0.13	0.09	0.15	0.09	0.08
Clothes and Shoes	0.25	-0.07	0.0	0.15	0.18	0.05	0.05	0.08
■ Services (ex. Shelter)	1.16	0.99	0.12	1.39	1.04	0.86	0.67	0.74
Health Care Services	0.36	0.72	-0.22	0.6	0.39	0.33	0.3	0.27
Transportation	0.03	0.01	-0.02	-0.02	-0.1	0.05	0.06	0.05
Recreational	0.13	-0.03	0.09	0.02	0.17	0.05	0.06	0.07
Food and Accommodations	0.22	-0.06	-0.12	0.35	0.23	0.12	0.12	0.09
Financial and Insurance	0.12	0.15	0.1	0.05	-0.04	0.07	0.02	0.13
■ Shelter	0.06	-0.03	-0.06	-0.09	0.14	0.13	0.25	0.25
Housing Services and Utilities	0.17	0.01	0.12	0.07	0.29	0.14	0.14	0.23
Residential Fixed Investment	-0.11	-0.04	-0.18	-0.16	-0.15	-0.01	0.11	0.03

Source: Bureau of Economic Analysis

[Consumer spending per capita monthly growth rate]

[Top quintile consumer spending share of gross pre-tax income and bottom 80 percent share]

Household Balance Sheets

[Consumer Credit and Mortgages as share of DPI]

Housing prices

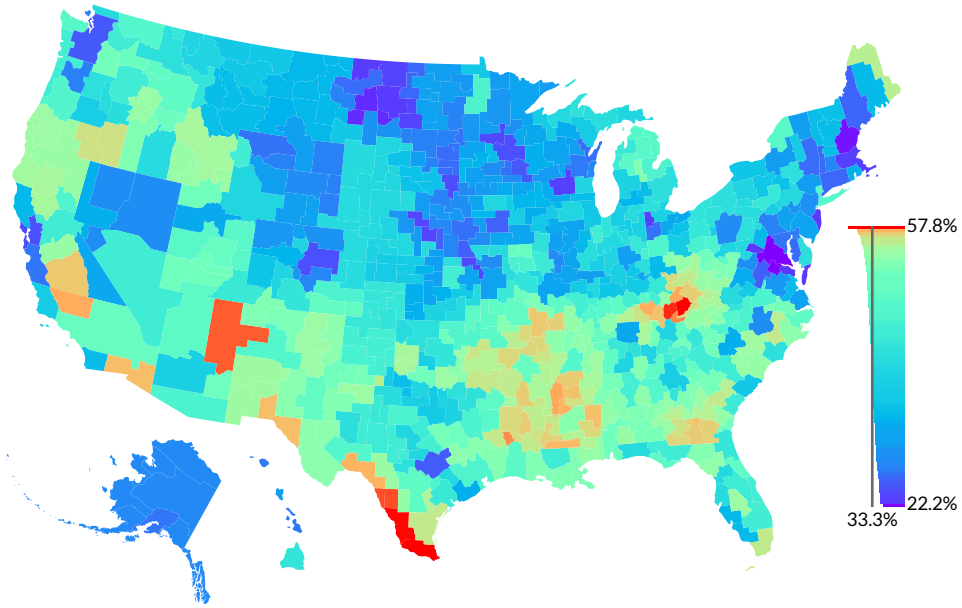
Housing permits/starts

Geographic location of housing permits

Poverty

Include data on number of people in poverty and the official poverty rate. Perhaps include a chart showing the official poverty rate over time. Perhaps also try to capture some concepts around methodology (SPM for example) and about relative poverty.

Share of local population in bottom third of housing-adjusted income, 2017
Share of commuting zone householders with after-housing-expense annual income below $13,060



Source: American Community Survey

Businesses

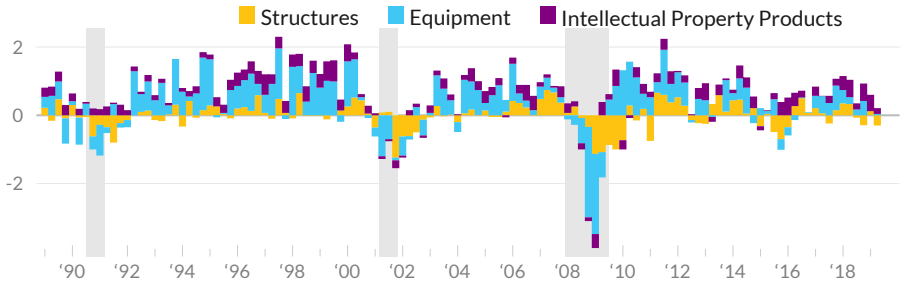
Overview text goes here and perhaps a chart.

Business Fixed Investment

When businesses invest in ways that make workers more productive, the economy is able to meet more material needs with the same inputs. Business investment is grouped by structures (see), equipment (see), and intellectual property products (see).

Private Non-Residential Fixed Investment

percentage point contribution to GDP growth



Source: Bureau of Economic Analysis

[Table showing detailed non-residential fixed investment]

Durable goods new orders

Corporate profits

Industrial production

Retail sales

Free cash flow

Balance sheets

Government

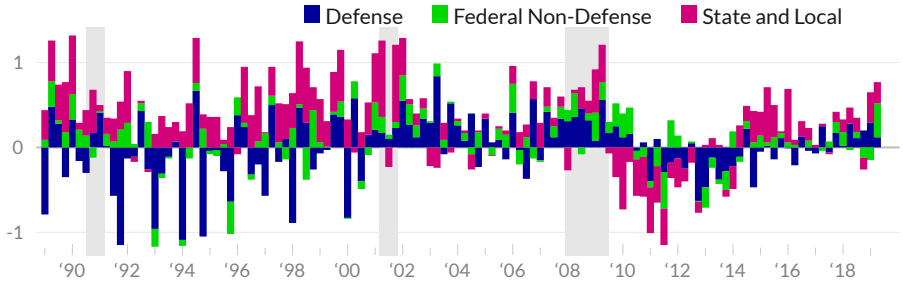
Overview

Government Consumption and Investment

Government consumption and fixed investment provide one way to measure how much public sector activities are influencing the economy. The contribution to real GDP growth from the public sector can be broken down by federal defense (see), federal non-defense (see), and state and local (see).

Government Consumption and Investment

percentage point contribution to GDP growth



Source: Bureau of Economic Analysis

Federal

Outlays on interest as share of GDP

State

Local

Balance sheets

Does this section include the Federal Reserve?

External Sector

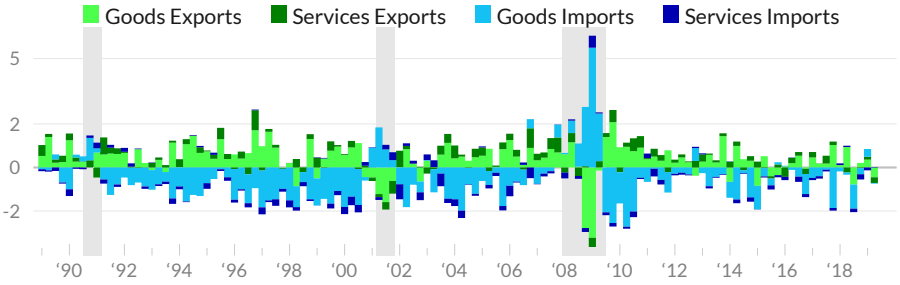
Overview text goes here. Perhaps mention the size of total trade, imports, exports, and the trade balance, as a share of GDP. Perhaps include the trade balance/ GDP chart here. Eventually, section should capture changes in trade by goods and by partner. Section also needs to capture cross border flows of investment, though much of FDI seems to be tax avoidance. Try to tease out meaningful series, like remittances.

Trade

The US runs a persistent trade deficit, which often shows up as a negative contributor to GDP growth. The trade balance is the exports of goods (see) and the exports of services (see) minus imports of goods (see) and imports of services (see).

International Trade

percentage point contribution to GDP growth



Source: Bureau of Economic Analysis

Current account balance

Trade in Goods

Trade in Services

Trade balance

Exchange rates

Direct and Portfolio Investment

International Investment Position

Labor Markets

This will be the largest section

Overview

Employment Rate

Unemployment Rate

Job growth

Wage growth

Quits

Openings

Jobless claims

Reasons for non-participation

State- and sub-state-level analysis

Capital Markets

Overview

Equity markets

Interest rates

Yield curve

Valuations

Prices

CPI

PPI

XMPI

PCE

Expectations

International Comparisons

Demographics

Economic Activity

Labor Markets

Poverty

References

List of tables and sources along with some notes...

One option for this section is to have some json data that captures what original data goes into each series and also what types of calculations are done on the original data.

Acknowledgments

Gabriel Mathy, Iordan Koulov, Lara Merling, Kevin Cashman, Rebecca Watts, Dean Baker, Eileen Appelbaum, John Schmitt, Rainer Köhler, Gersenda Verasco, Venkat Josyula, Tom Augspurger, Mike Sieferling, Matt Bruenig, and Ernie Tedeschi.