Lecture 21: COVID-19 and Aftermath

ECON 43370: Financial Crises

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COVID-19

The COVID-19 recession was extremely short: two months (March and April, 2020)

But extremely deep (unemployment peaked at almost 15 percent in April)

The stock market crashed (late February into early March)

There were initial signs of a financial panic (declining stock market, rising spreads, "dysfunction" in Treasury markets)

- "Dysfunction": loss of liquidity. Widening bid-ask spreads and large trades moving prices more than normal
- Either because of actions taken or otherwise, there was no banking crisis

COVID-19 and Policy

Initially, at least, COVID is best thought of as a demand collapse

- People simply couldn't consume as much
- There was also important reallocation impacts (e.g., delivery vs. in-store shopping)

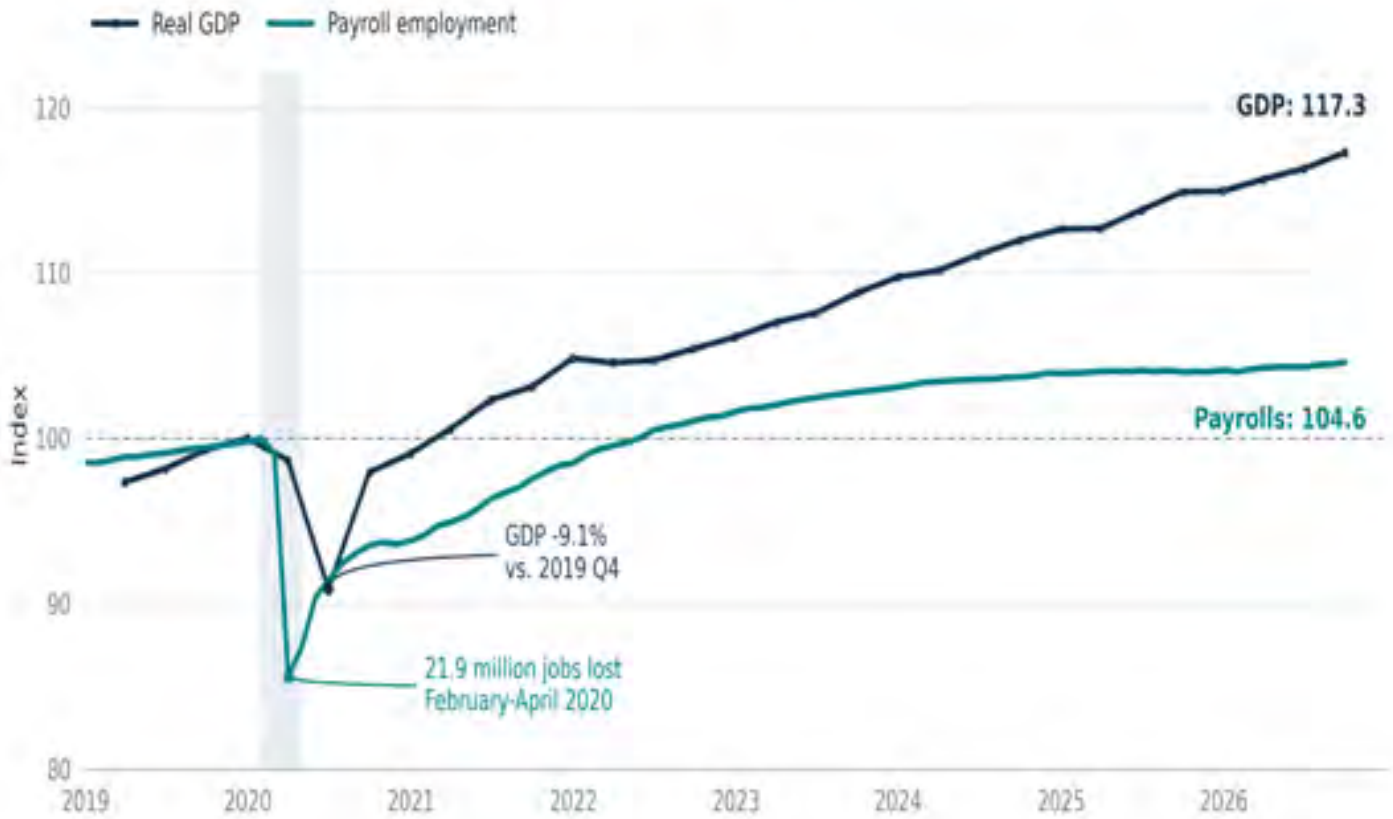
As 2020 wore on, demand roared back, and supply bottlenecks became an issue

The thing that really sticks out post-COVID is the high inflation

Inflation due to some combo of supply shocks and aggregate demand (from massive monetary and fiscal stimuli)

The shutdown erased years of growth in weeks

Real GDP and payroll employment | pre-pandemic levels = 100 | 2019-2026



GDP: 2019 Q4 = 100, plotted at quarter-end. Payrolls: Feb 2020 = 100. Both seasonally adjusted.
Gray band: Feb-Apr 2020 recession. Recovering a previous level is different from recovering the previous trend.
Sources: BEA; BLS via FRED (GDPC1, PAYEMS).

Financial markets briefly priced a much worse crisis

Corporate bond yield spreads over 10-year Treasuries | daily | 2019-2021

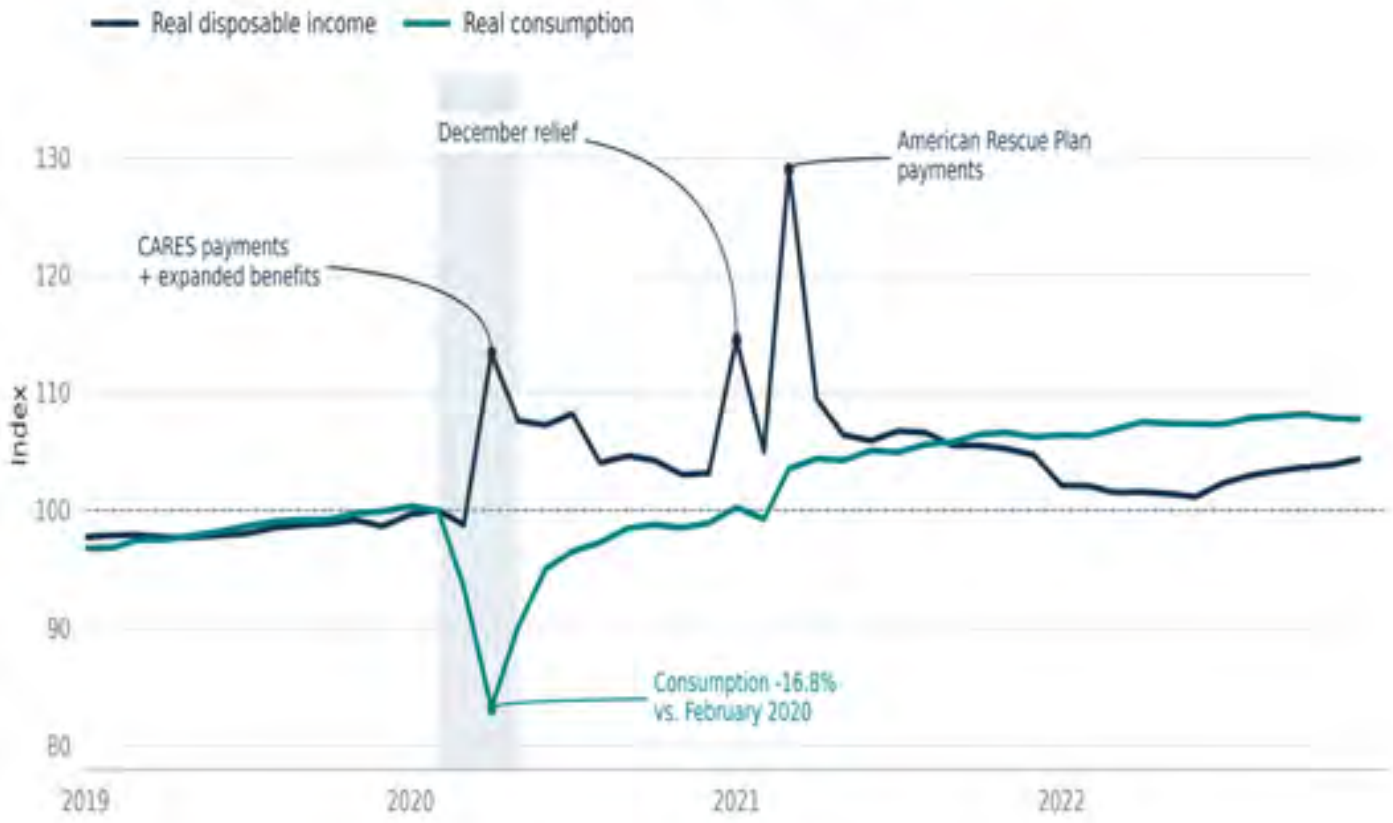


Simple yield differences, not option-adjusted or perfectly maturity-matched credit spreads. Policy markers establish timing; they do not isolate the effects of individual interventions.
Sources: Federal Reserve; Moody's / FRED (BAA10Y, AAA10Y)

Data snapshot: 13 Nov 2026

Household income rose while spending collapsed

Real disposable income and real consumer spending | Feb 2020 = 100 | monthly



Income is after personal taxes and includes government transfers. Both series are seasonally adjusted.
The gap between separately rebased indices is not a dollar measure of saving or a no-policy counterfactual.
Source: BEA via FRED (DSPIC96, PCEC96); BEA pandemic-program notes.

Data snapshot: 13 Nov 2026

The labor market swung from slack to scarcity

Unemployment and job openings per unemployed person | monthly | 2019-2026

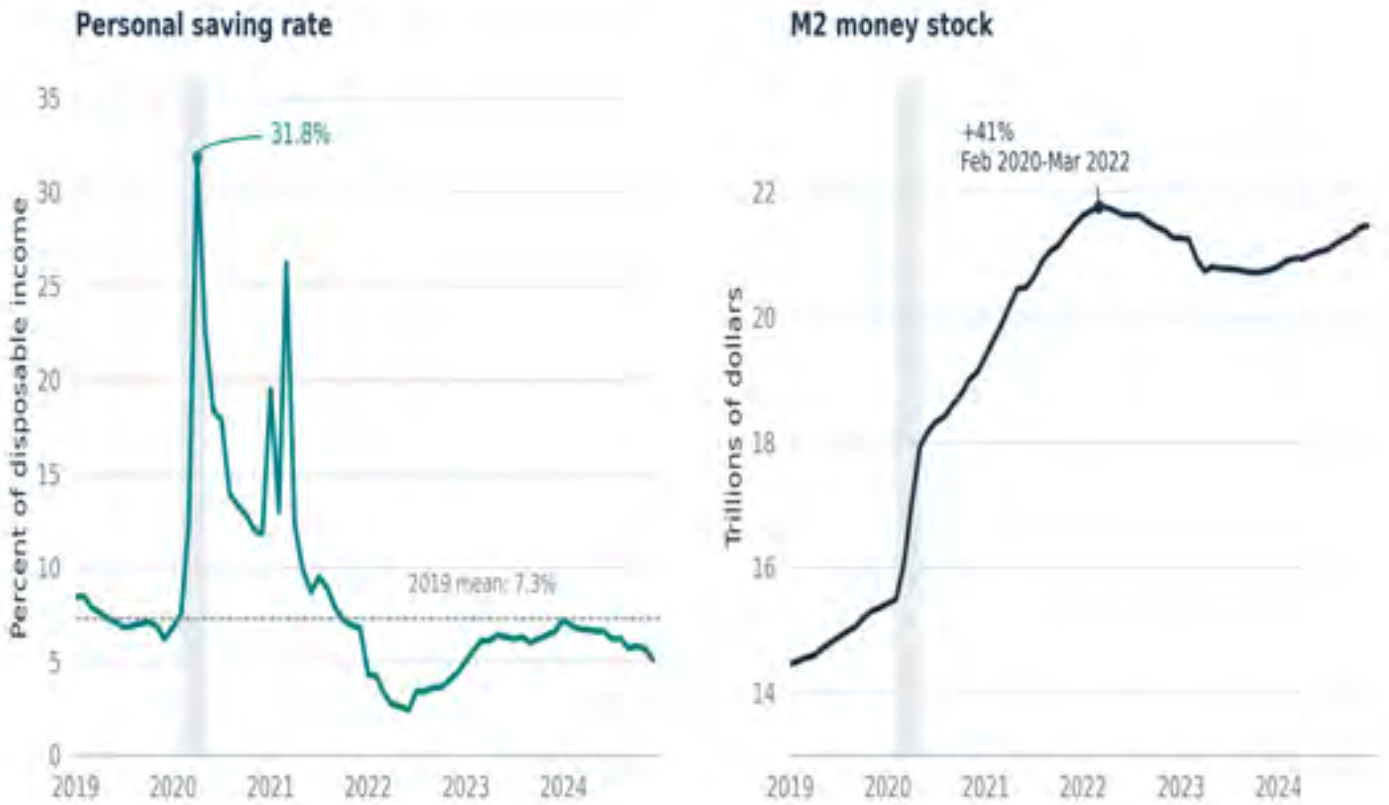


Openings and unemployed people are stocks from different BLS surveys. Both series are seasonally adjusted.
Unavailable observations remain gaps; no missing values are interpolated.
Source: BLS via FRED (UNRATE, JTSJOL, UNEMPLOY)

Data snapshot: 13 Nov 2026

Saving surged, and broad money expanded

Two different margins of the response | monthly | 2019-2024



Personal saving is a flow; M2 is a stock that includes currency, deposits, and retail money-market fund balances. Their movements are related but are not an accounting identity or a causal estimate of inflation.

Sources: BEA; Federal Reserve via FRED (PSAVERT, M2SL).

Data snapshot: 13 Nov 2025.

Fed Policy Responses

Standard:

- Cut rates to zero (FFR and discount rate), explicitly encourage use of the discount window, aggressive repo operations to support liquidity, used forward guidance aggressively, re-started large-scale asset purchases (QE)

Emergency liquidity facilities:

- CPFF, MMLF, PDCF
- Dollar swap lines

Lending to non-financial firms (new):

- TABSLF, PMCCF, SMCCF
- PPPLF and MLF
- Main Street Lending Program

Rate increases began after inflation had accelerated

Effective federal funds rate and 12-month PCE inflation | monthly | 2019-2026



The policy series is the monthly average effective rate, not the FOMC target-range upper bound.
Their difference uses past inflation; it is not the forward-looking real interest rate.
Sources: Federal Reserve; BEA via FRED (FEDFUNDS, PCEPI).

Data snapshot: 13 Nov 2026

Fed Repo Operations

Fed engages in repurchase agreements with primary dealers – these are essentially short-term, secured loans

The dealers don't directly hold reserves, but they have banks that do

Initially, Covid generating a dash for cash

- People were dumping securities (even Treasuries) and wanted cash)
- Dealer banks are essentially market makers: they buy securities, hold for a while, and then sell to others
- Everyone wanting cash: dealer inventories grew, and they were running out of cash

Fed Repo operations eased funding pressures: allowed dealers to effectively swamp inventory of Treasuries for reserves

Primary Dealer Credit Facility

Conceptually similar to repo operations

Lend directly to dealer banks, using securities as collateral

Give the dealers dollars to ease funding strains so markets could continue to function

Difference relative to repo operations: much broader acceptable collateral (corporate bonds, commercial paper, etc.)

Commercial Paper Funding Facility

Large non-financial funds often use commercial paper to raise cash to meet payroll, etc

Massive pullback from buying CP – both from investors but also money market funds

The facility instituted the Fed as a "backup buyer": it purchased CP (and ABCP) inside a special-purpose vehicle

- Treasury supplied \$10 billion in equity to absorb any losses

In practice, CP holdings ended up being modest

Money Market Mutual Fund Liquidity Facility

Prime money funds were facing a run (like 2008)

Heavy redemptions forced funds to dump assets

MMLF allowed the Fed to finance purchases of assets – lent to banks and other eligible institutions who purchased high-quality assets from money funds

Basically: propped up demand for high-quality assets, which allowed funds to meet redemptions with dollars without taking losses

Again, Treasury provided equity protection to absorb any losses. Large than CP funding but not enormous and didn't last too long

Why Treasury Equity Backstop?

The basic way these facilities worked:

- Fed created a special-purpose vehicle (SPV)
- Treasury contributed equity
- Fed lent to the vehicle (rather than more directly!)
- Vehicle made loans or purchased securities

For most of these facilities, the Treasury provided capital as an equity backstop to absorb any losses

With exception of TALF, Treasury backstopping hadn't been done earlier (but Dodd-Frank required Treasury approval)

Created appearance of Treasury exposing itself to losses, not the Fed

Dollar Swap Lines

Domestic dash for cash

Global, too: everyone wanted dollars

Dollar swap lines essentially involved the Fed lending dollars to foreign central banks (with foreign currency as collateral)

Banks in foreign countries could then lend dollars within their jurisdictions

Fed added new partners to their existing ones and expanded operations. Outstanding swap lines peaked near $450 billion in May 2020

Corporate Debt

Primary and Secondary Corporate Credit Market Facilities were announced in March 2020

Large initial announcements: up to $750 billion in lending, with $75 billion Treasury backstop

The primary facility was never actually used

The secondary facility only held about $15 billion by the end of 2020

Nevertheless, the mere announcement of these facilities may have had a positive impact on bond market health

Main Street Lending Program

Idea: to extend credit (more or less) directly to small businesses

- Actual banks made the loans
- A Fed facility would then purchase 95 percent of each loan, with originator retaining 5 percent

Ended up being modest in size: fewer than 2000 total loans at under $20 billion

QE Infinity

On March 23, the Fed pledged to buy long-term securities "in the amounts needed"

At least initially, the purpose was to support functioning in these markets (similar to repo operations and the PDCF)

Later, more to stimulate the economy via lower long-term rates

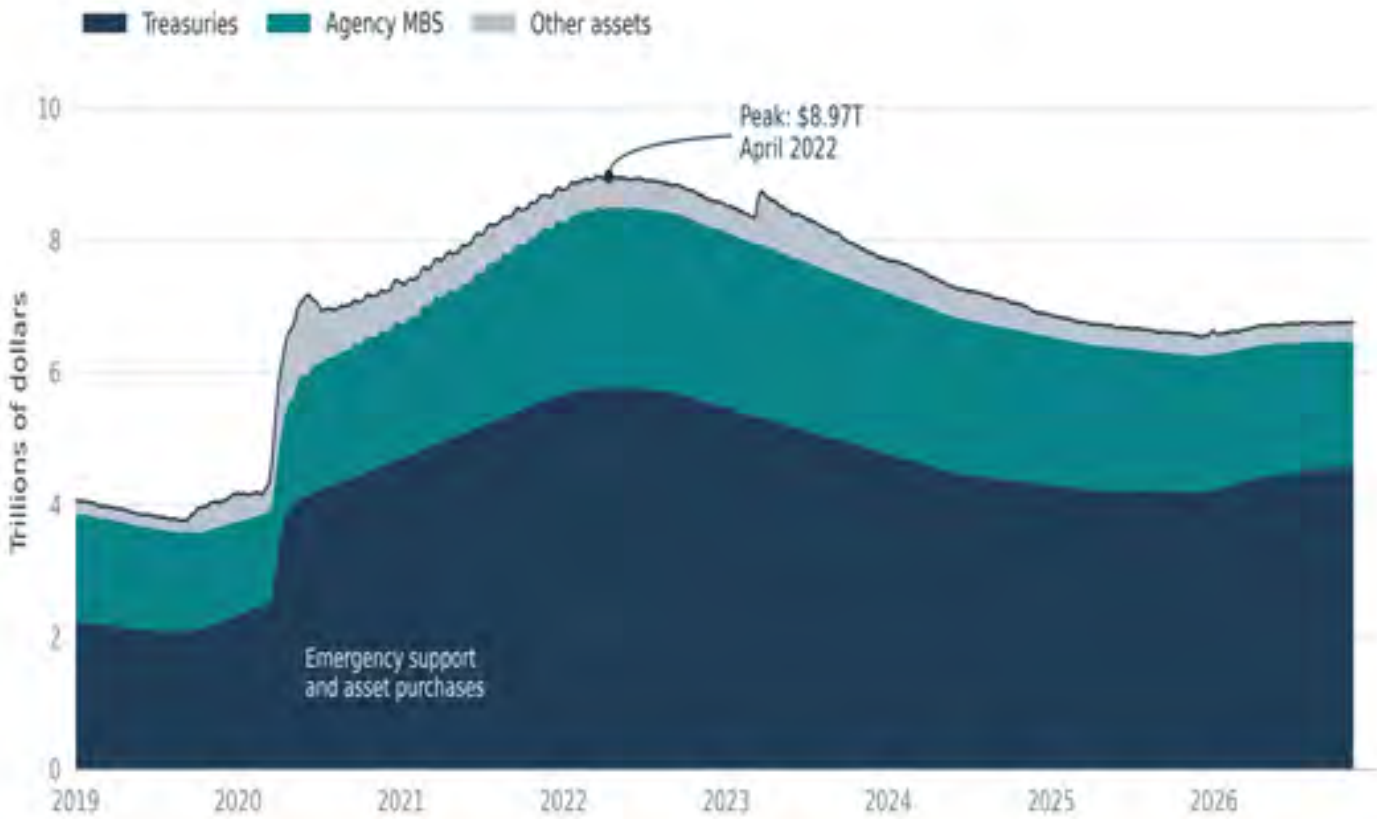
Purchases settled around $80 billion in Treasuries and $40 billion in agency MBS per month

Balance sheet surged from around $4 trillion to $9 trillion by early 2022

Tapering began in November 2021 and purchases ended in March 2022

The Fed balance sheet more than doubled

Federal Reserve assets | trillions of dollars | weekly | 2019-2026



Other assets include loans, swaps, repos, and other items. The three components sum to total assets.
Asset purchases and credit support are different operations from fiscal transfers; the dollar amounts should not be added.
Source: Federal Reserve H.4.1 via FRED (WALCL, TREAST, WSHOMCB).

Data snapshot: 13 Nov 2026

Fiscal relief arrived in three large waves

Original CBO estimates of increases in federal deficits | trillions of dollars



Sum: $5.128 trillion. Spring 2020 covers four laws, including CARES. December covers COVID divisions M and N. Estimates span the laws' scoring windows (2020-30 / 2021-30); these are not cash outlays at enactment.
Sources: CBO, June 2020 and September 2021 legislative budget summaries.

Data snapshot: 13 Nov 2026

Fiscal Stimulus: CARES Act

Enacted March 2027, approximately $2.4 trillion (approx 10 percent of GDP)

- Checks to households: $1200 per eligible adult and $500 per qualifying child
- Expanded unemployment benefits: more per week, extended duration
- Paycheck Protection Program (PPF)
- About $150 billion for state and local relief

Paycheck Protection Program (PPP)

Provided small businesses with forgiveable loans (2.5 months of payroll)

Could be forgiven (turned into grants, rather than loans) if used to maintain payrolls

Loans went through traditional banks (Fed helped provide funding to those banks through PPPLF)

Ended up disbursing $800 billion. Most of this was forgiven

Probably saved a number of jobs, but at high cost

Fiscal Stimulus: December 2020

Enacted December 27, extended support from earlier programs for the CARES act

Ended up being about $1 trillion

- Second round of checks: $600 per adult, another $600 per household
- Additional unemployment insurance and extension
- Authorized more money for PPP

Fiscal Stimulus: American Rescue Plan

About $2 trillion, enacted in March 2021

- Third round of checks: $1400 per eligible person
- Expanded unemployment support
- Expanded child tax credit
- Significantly more support for state and local governments

Fiscal Stimulus: Overall

Massive fiscal stimulus during COVID

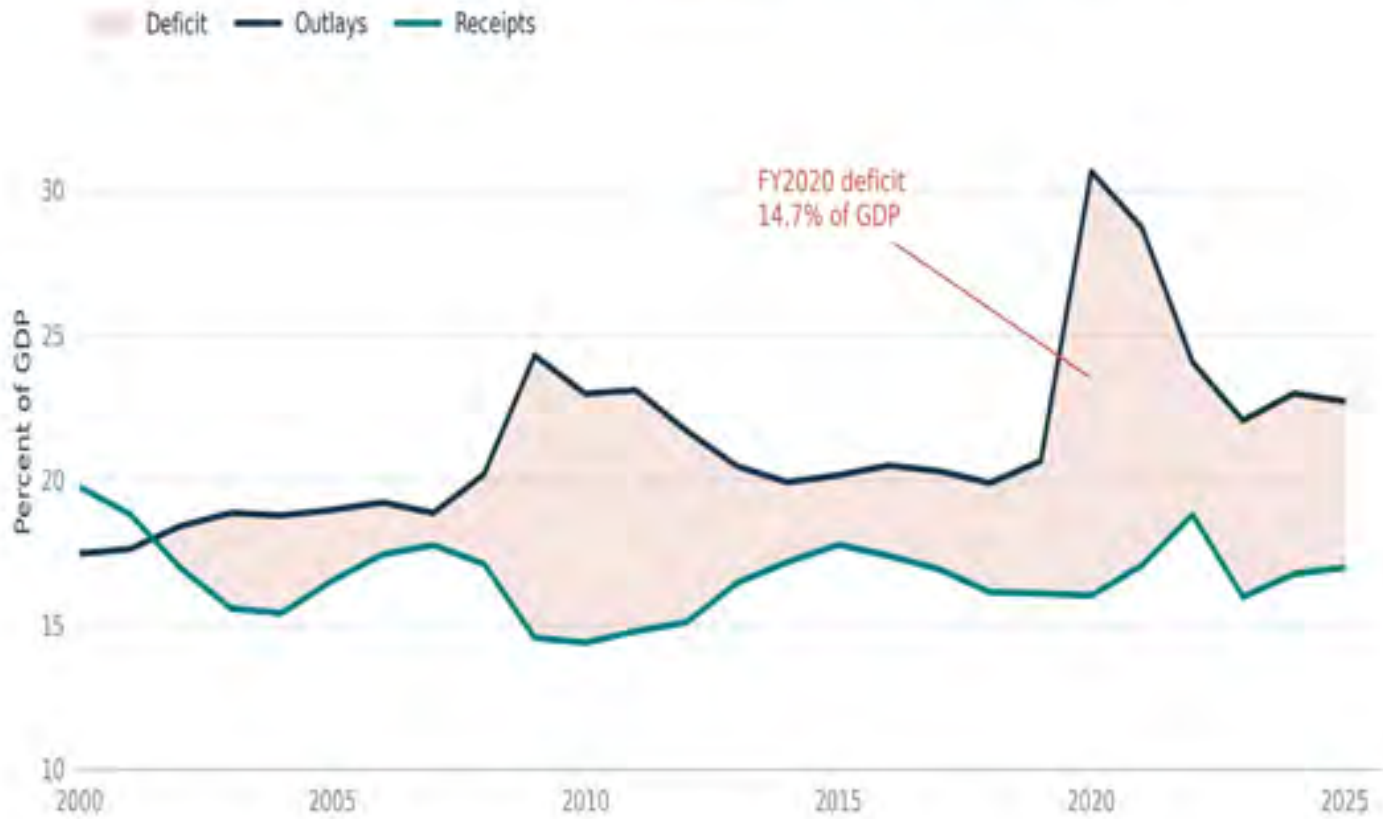
All told, about $5 trillion (1/4 of GDP) across three waves

The 2008 Economic Stimulus Act and 2009 Recovery Act were about $1 trillion, or 6 percent of GDP

2020 stimulus was also exceptionally fast

The federal budget absorbed much of the shock

Federal outlays and receipts | percent of GDP | fiscal years 2000-2025



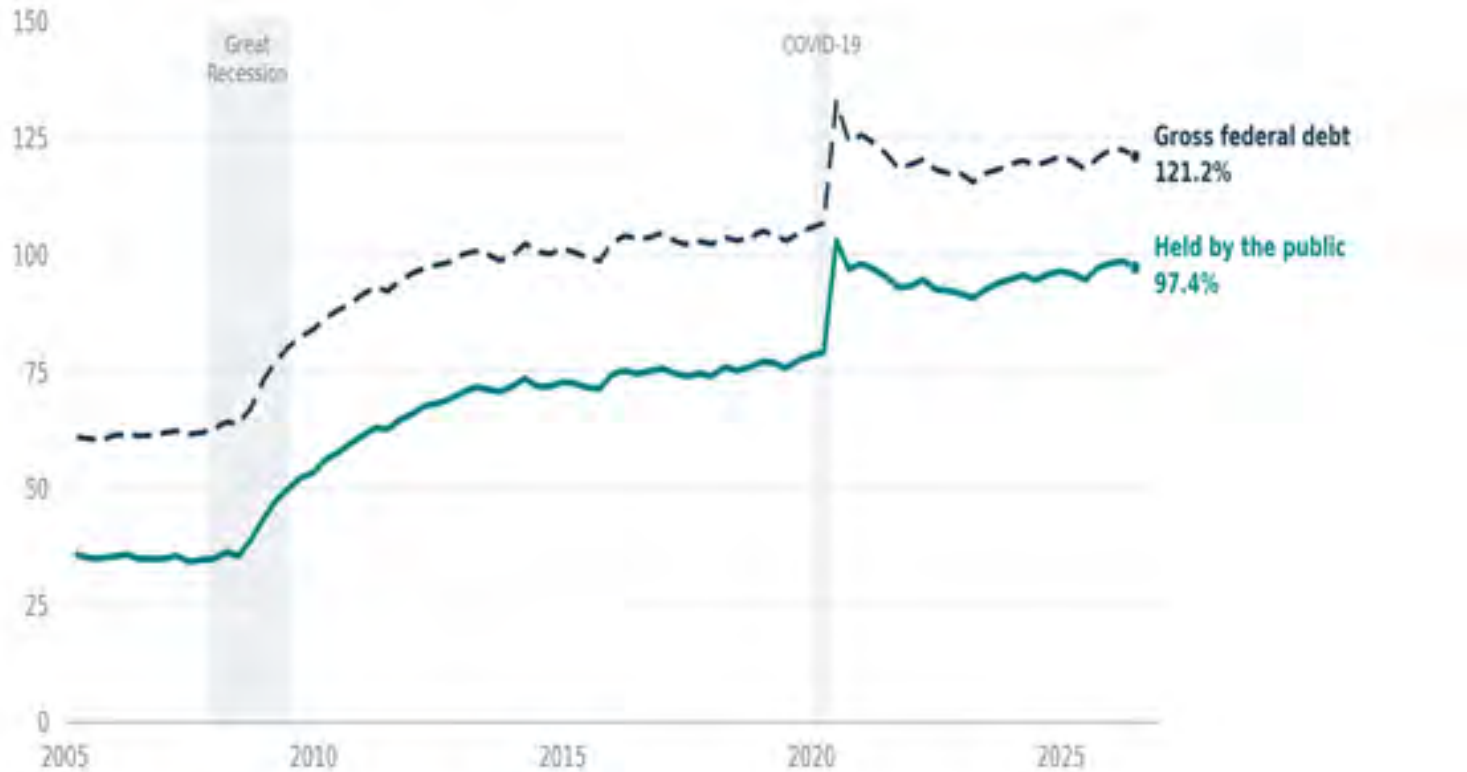
Shaded gap: deficit (outlays less receipts). FRED divides fiscal-year budget flows by same-year calendar GDP. The gap reflects relief legislation, automatic stabilizers, other budget changes, and movements in GDP.
Sources: OMB; BEA; Federal Reserve Bank of St. Louis via FRED

Data snapshot: 13 Nov 2026

FINANCIAL CRISES 2026 / FEDERAL FINANCES

U.S. federal debt relative to GDP

Quarterly, 2005 Q1–2026 Q2 | Percent of GDP



Debt held by the public includes Federal Reserve holdings. Gross debt also includes intragovernmental holdings.

Quarter-end debt / same-quarter GDP at an annual rate. Shading marks NBER recessions.

Sources: FRED (OMB, Treasury, BEA), NBER. Latest published ratios: 2026 Q2. Retrieved November 16, 2026.

Covid-era Inflation

In 2020, inflation initially declined (and even went slightly negative by some metrics)

Inflation really took off in 2021, peaking in the middle of 2022 (9 percent)

Came down substantially over the next year (to around 3 percent)

Leveled off and shows some signs of taking off again

Key question: why?

- Demand or supply?
- Role of policy?

Inflation broadened in the U.S. and surged abroad

Consumer price inflation | 12-month percent change | monthly | 2019-2024

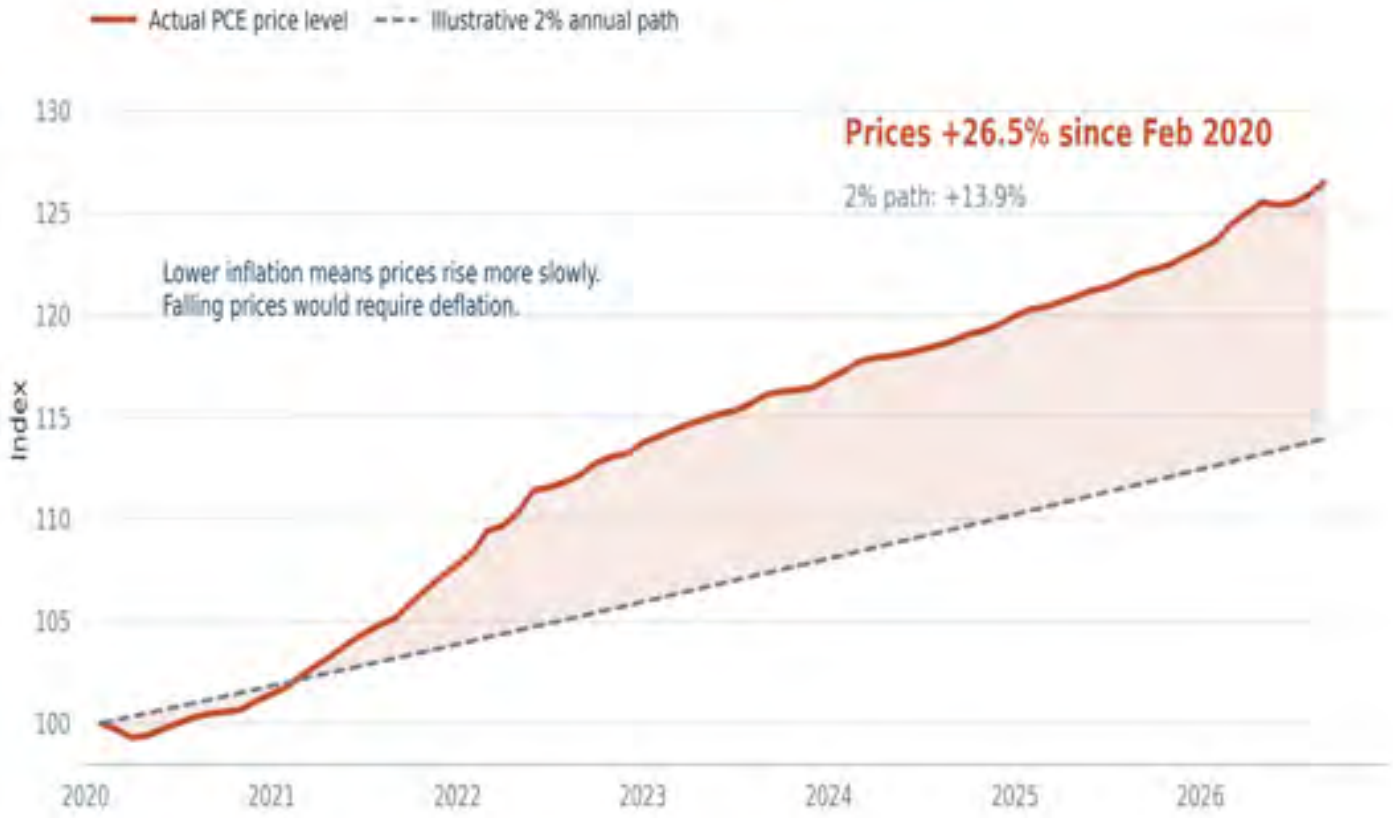


Core CPI excludes food and energy. Euro area uses HICP with a fixed 19-country composition.
Consumer-price baskets differ; international co-movement is context, not a causal estimate of fiscal-policy effects.
Sources: BLS via FRED; ONS (D7G7); Eurostat (EA19 HICP).

Data snapshot: 13 Nov 2026

Disinflation did not put the price level back

PCE price level and an illustrative 2% path | Feb 2020 = 100 | through Sep 2026



Benchmark: 2% compounded annual growth beginning in February 2020. It is not a promised Fed price-level target.
The gap is descriptive, not a causal estimate of COVID relief; later years also include other shocks and policy changes.
Source: BEA via FRED (PCEPI); benchmark calculated from 2% annual growth

Data snapshot: 13 Nov 2026

Blanchard and Bernanke (2025)

In 2020, no one saw the inflation surge that was coming

Large fiscal transfers and exceptionally easy monetary policy coincided with supply disruptions from reopening and pent-up demand

Inflation's initial causes could be different than reasons for its persistence

Simple Theory

Essentially a standard Phillips curve type theory of inflation

- Inflation driven by wages (marginal cost) and non-wage cost of inputs
- Wages driven by price expectations and labor market slack (plus some inertia)

Pre-pandemic research: Phillips curve quite "flat"

Model: to get a large and quick surge in inflation, needs to be drive by "goods market" pressures (i.e., supply chain disruptions)

What Do They Find?

They estimate an empirical version of this model

They find:

- Product-market pressures drove the initial inflation surge
- Demand still mattered: expansionary monetary and fiscal policies pushed up against supply constraints
- Labor market pressure became more persistent
- Called for some monetary tightening to bring things back into better balance

FINANCIAL CRISES 2026 / GLOBAL ECONOMY

Global supply chain pressures

New York Fed Global Supply Chain Pressure Index | January 2019-October 2026



Zero = historical average. Higher values indicate greater supply chain pressure.

Source: Federal Reserve Bank of New York. Monthly data. November 2026 vintage. Retrieved November 16, 2026.

Shapiro (2024)

Decomposes inflation into supply and demand forces

Basic idea: identify demand shocks (inflation and output move in same direction) from supply shocks (inflation and output move in opposite direction)

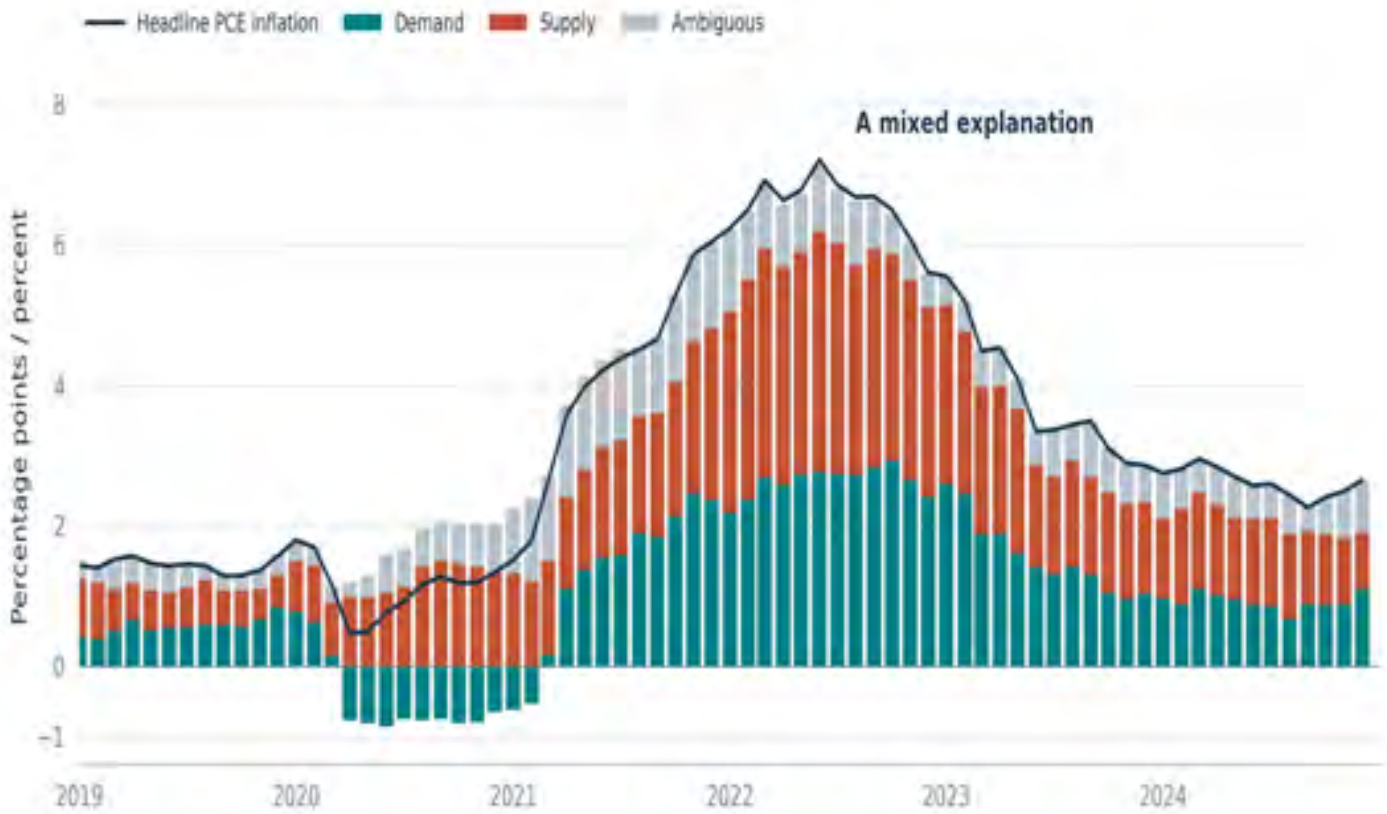
Demand-driven inflation collapsed in 2020, surged in 2021 and remained strong into 2023

Supply-drive inflation peaked in spring 2022

Largely complementary with Blanchard and Bernanke – caveat is that demand could impact "product-market channel"

Both supply and demand contributed to inflation

San Francisco Fed classification of PCE inflation | 12-month contributions | 2019-2024



Categories are classified using unexpected price and quantity movements. These are not fiscal- or Fed-aligned shares.
Contributions are trailing sums of monthly estimates and need not add exactly to published 12-month PCE inflation.
Sources: FRBSF | Adam Shapiro; BEA. FRBSF data updated 29 Oct 2026.

Data snapshot: 13 Nov 2026

FINANCIAL CRISES 2026 / MONETARY POLICY

Federal funds rate vs. Taylor rule

2019 Q1–2026 Q3 | Quarterly observations | Percent per year

Taylor rule: $i_t = 2 + \pi_t + 0.5(\pi_t - 2) + 0.5\,gap_t$



Rule inputs: neutral real rate = 2%; inflation target = 2%; inflation = 4-quarter headline PCE change.

Output gap = 100 × (real GDP / CBO potential GDP − 1). No rate smoothing or zero floor; currently revised data.

Sources: Federal Reserve, BEA, and CBO via FRED. Actual rate: mean of monthly effective rates. Retrieved November 16, 2026.

FINANCIAL CRISES 2026 / HOUSEHOLD EXPECTATIONS

Long-run inflation expectations

University of Michigan Survey of Consumers | Next 5-10 years | Monthly median, percent



Horizon: average annual price changes expected over the next 5-10 years. November 2026 is preliminary.

Official monthly series; phone-to-web interviewing transition occurred in April–July 2024.

Source: University of Michigan, Surveys of Consumers. Retrieved November 16, 2026.