Macroeconomics in One Equation
Lecture 1: Introduction and Overview

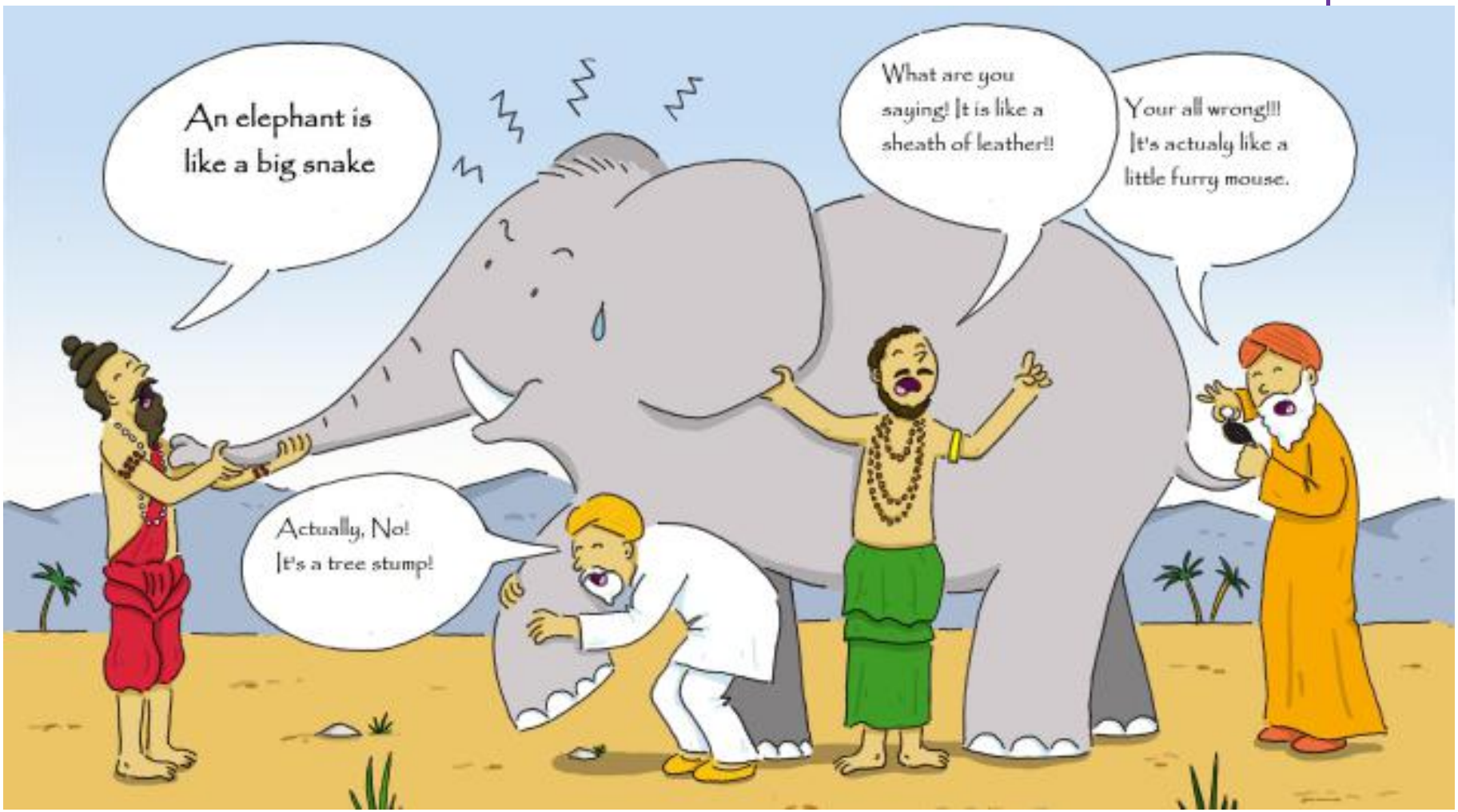
Biwei Chen

For His Glory and Mission

Business & Economics

Houghton College

Macroeconomics Parable: The Blind Men and the Elephant



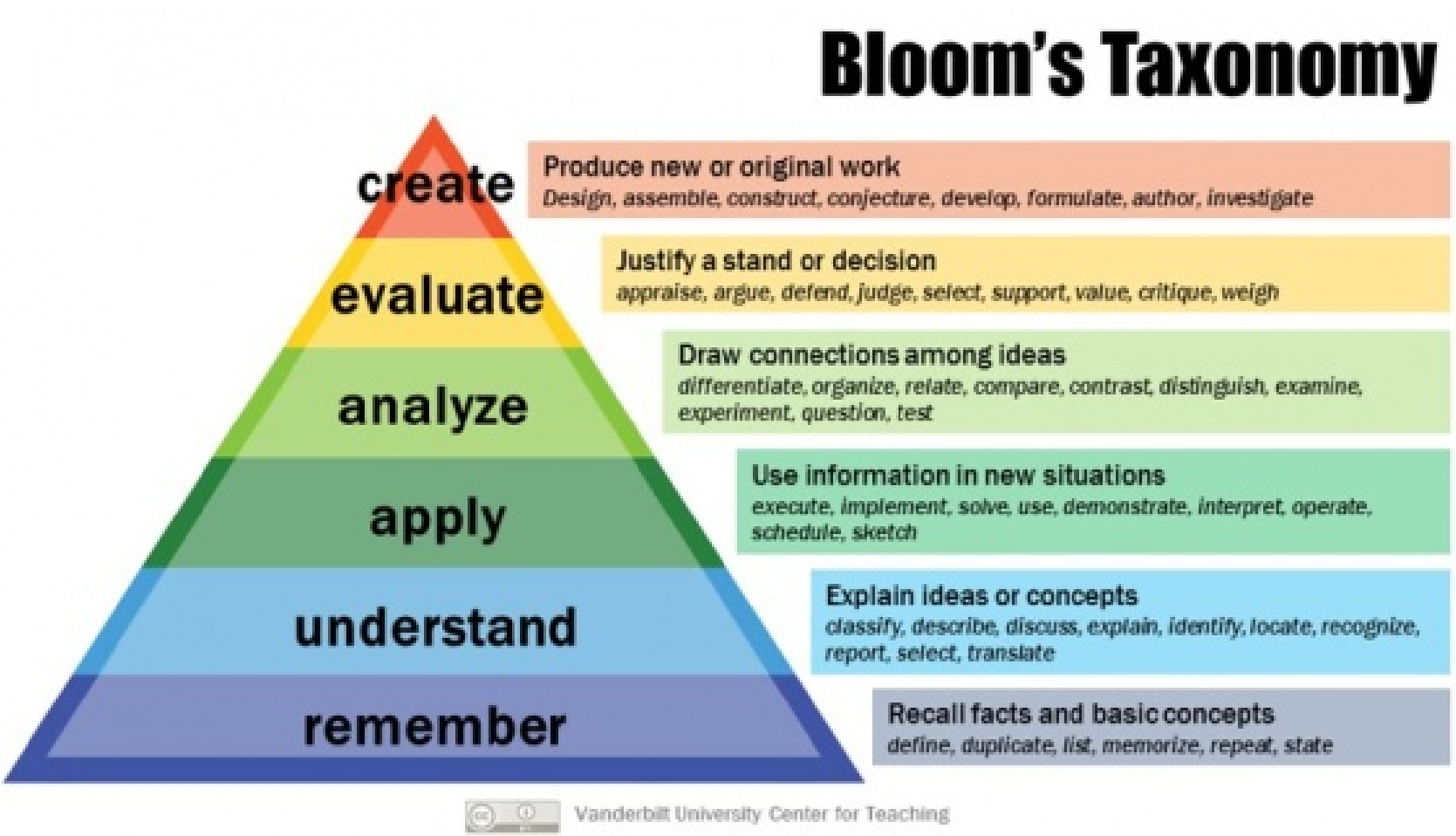
The parable of the blind men and the elephant is used to illustrate how inaccurate perception can be, how biases can blind us, and how the entire truth of something might be misunderstood despite accurate observation. This parable is often used as a cautionary tale against the adoption or promotion of "absolute truths."
http://www.wisehypnosis.com/articles/stories-parables/the-blind-men-and-the-elephant-parable/

Outline

Macroeconomics: Basic Questions

1. What is Macroeconomics?
   - Macroeconomics studies overall conditions of the economy.
   - The most essential sets of macroeconomic variables are national income, employment, price level, money and interest rate.
2. Why study Macroeconomics?
   - To better understand how the economy functions
   - To inform business/financial/policy decisions
3. How to study Macroeconomics?
   - Learn basic concepts and develop intuition
   - Master the tools and acquire quantitative skills
   - Follow and analyze the business/market/policy news
   - Connect the dots: engage in practice and applications
4. Learning Economics intuitively, graphically, and quantitatively.
5. Learning philosophy: core values, vital skills, and critical thinking.

Learning Pyramid: Progress to Application and Analysis



https://diversifyingecon.org/active-learning

Macroeconomics in the News and Media

- CNBC | Economy `https://www.cnbc.com/economy/`
- WSJ | Economy `www.wsj.com/news/economy`
  `https://www.wsj.com/video/browse/business/economy`
- NPR | Planet Money `https://www.npr.org/sections/money/`
- NY Times | Economy
  `https://www.nytimes.com/section/business/economy`
- Bloomberg | Economics
  `https://www.bloomberg.com/markets/economics`
- Reuters | Macromatters
  `https://www.reuters.com/markets/macromatters/`
- The Economist | Finance & Economics
  `https://www.economist.com/finance-and-economics`
- Financial Times | US Economy `https://www.ft.com/us-economy`

Macroeconomics: Nature and Scope

1. Economics is the study of choice under scarcity. It can be classified into Microeconomics, Macroeconomics, and Finance.
2. Microeconomics analyzes how individuals (consumers, producers, and governments) make decisions in the society.
3. Macroeconomics studies how the aggregate economy functions.
4. In nature, Economics is a decision-making social science.
   - Science is human being's inquiry into understanding the universe.
   - Economists, like scientists, follow and apply scientific methodology.
   - The economy and society is the natural laboratory for economists.
5. Macroeconomics subfields
   - Money and Banking
   - Monetary Economics
   - International Macro Finance
   - Public Economics & Finance
   - Applied Macro Econometrics

Microeconomics vs Macroeconomics

https://www.cheggindia.com/career-guidance/difference-between-microeconomics-and-macroeconomics/

Vital Concepts in Microeconomics

Opportunity Cost

The opportunity cost of an action is the highest-valued option necessarily forgone. It is forward-looking. Historical cost is not a cost.

The Law of Demand

When price goes up, quantity demanded goes down, ceteris paribus.

The Coase Theorem

The delineation of rights is an essential prelude to market transactions.

Equity and Efficiency

Pareto optimality is the condition under which no one in the society can be made better off unless someone else is getting worse off.

Macroeconomics in One Equation: MV=PY

$$\boxed{\mathbf{MV = PY}}$$

$$\boxed{Y = F(K, L)}$$

$$\boxed{AD = Y^* = AS}$$

$$\boxed{Y = C + I + G + NX}$$

$$\boxed{\pi = \frac{\Delta P}{P} \approx \frac{\Delta M}{M} - \frac{\Delta Y}{Y}}$$

$$\boxed{M_D = M_D(P, Y, i) = \overline{M_S}}$$

$$\boxed{\mathbf{i \approx r + \pi^e}}$$

1. Income and Wealth
2. Labor Market Condition
3. Price Level and Inflation
4. Money and Interest Rate
5. Development and Growth
6. Business Cycle Fluctuation
7. Inflation and Unemployment
8. Consumption and Investment
9. Government Budget and Fiscal Policy
10. Central Banking and Monetary Policy
11. Global Economy, Trade, and Finance

Macroeconomists: Skill Sets

What do macroeconomists do?

1. Modeling and forecasting (business and finance industry)
2. Policy analysis and evaluation (government and public sector)
3. Empirical and theoretical research
4. Business and legal consulting
5. Education and training

Essential skills required

1. Research and optimization
2. Statistical data analysis
3. Mathematical modeling
4. Writing and presenting
5. Communication skills
6. Systematic thinking

AEA: What careers follow after an economics degree?

`https://www.aeaweb.org/resources/students/careers`

Articles: Top jobs and skills for Economic and Finance Majors

`https://www.thebalancecareers.com/top-jobs-for-economics-majors-2059650`
`https://www.thebalancecareers.com/top-jobs-for-finance-majors-2064048`

Resources: Books and Courses

Online eBooks (downloadable)

- CORE-ECON https://www.core-econ.org/ebooks/
- OpenStax: Principles of Macroeconomics 2e.

  https://openstax.org/details/books/principles-macroeconomics-2e
- Rittenberg and Tregarthen (2012) Macroeconomics Principles 2e.

  https://2012books.lardbucket.org/books/macroeconomics-principles-v2.0/

Online Courses and Videos

- MRU - Principles of Macroeconomics

  https://mru.org/principles-economics-macroeconomics-0
- Khan Academy - Macroeconomics

  https://www.khanacademy.org/economics-finance-domain/macroeconomics
- Federal Reserve Bank of St. Louis- Economic Lowdown Video

  https://www.stlouisfed.org/education/economic-lowdown-video-series
- Learn Liberty Video https://www.learnliberty.org/videos

Resources: Encyclopedia and Articles

- Econlib Encyclopedia https://www.econlib.org/cee/
- IMF Understanding Economics - Back to Basics

  https://www.imf.org/external/pubs/ft/fandd/basics/index.htm
- Brookings Institute - Key Concepts in Macroeconomics

  https://www.brookings.edu/series/the-hutchins-center-explains/
- Brookings on the U.S. Economy https://www.brookings.edu/topic/u-s-economy/
- Federal Reserve Bank of St. Louis on the Economy

  https://www.stlouisfed.org/on-the-economy
- Federal Reserve Bank of St. Louis - Page One Economics

  https://research.stlouisfed.org/publications/page1-econ
- Project Syndicate Economics & Finance Columns

  https://www.project-syndicate.org/section/economics
- Nobel Prizes in Economic Sciences (1969-present)

  https://www.nobelprize.org/prizes/lists/all-prizes-in-economic-sciences/

Resources for Economists

Economics & Policy Research

- American Economic Association https://www.aeaweb.org
- National Bureau of Economic Research https://www.nber.org
- Peterson Institute for International Economics https://www.piie.com
- IDEAS – bibliographic database in Economics https://ideas.repec.org

Economists Job Markets

- EconJobMarket https://econjobmarket.org
- AEA job market https://www.aeaweb.org/joe/listings

International Governance Organizations

- World Bank https://www.worldbank.org
- World Trade Organization https://www.wto.org
- International Monetary Fund https://www.imf.org
- Organisation for Economic Co-operation & Development https://www.oecd.org

Outline

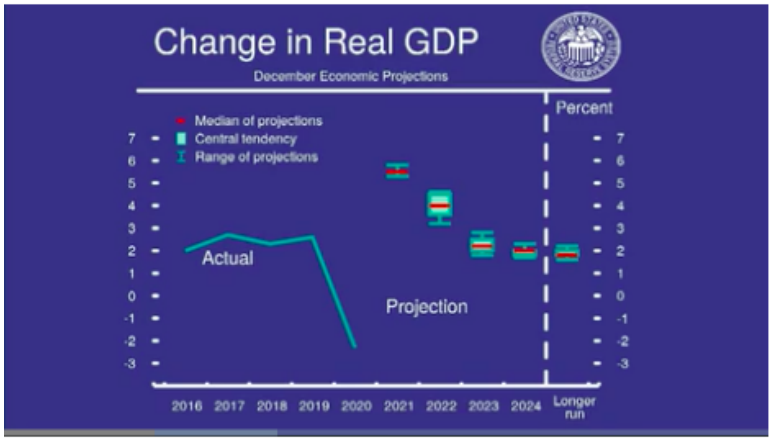
FOMC Press Conference (w)

FOMC Press Conference December 15, 2021
Introductory Statement

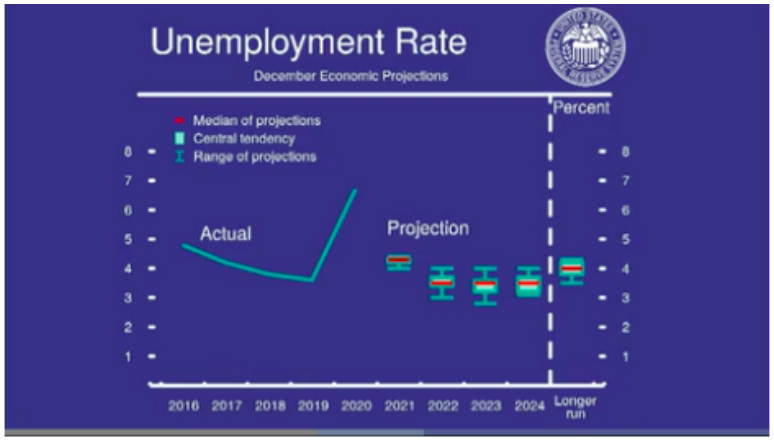
FOMC Press Conference December 15, 2021

https://www.federalreserve.gov/monetarypolicy/fomcpresconf20211215.htm

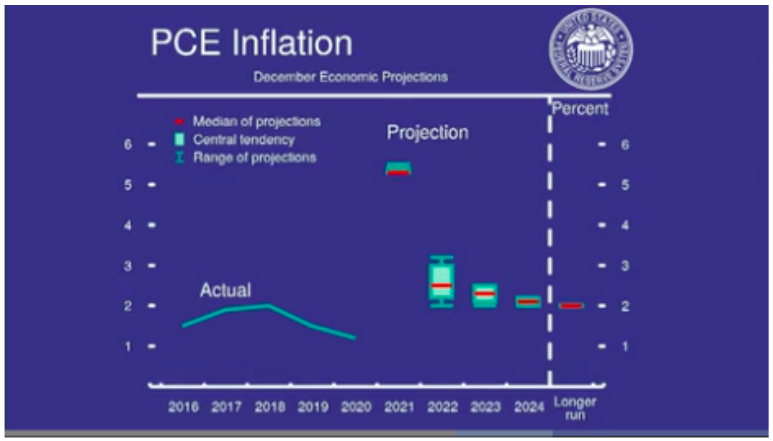
FOMC Economic Projects (w)



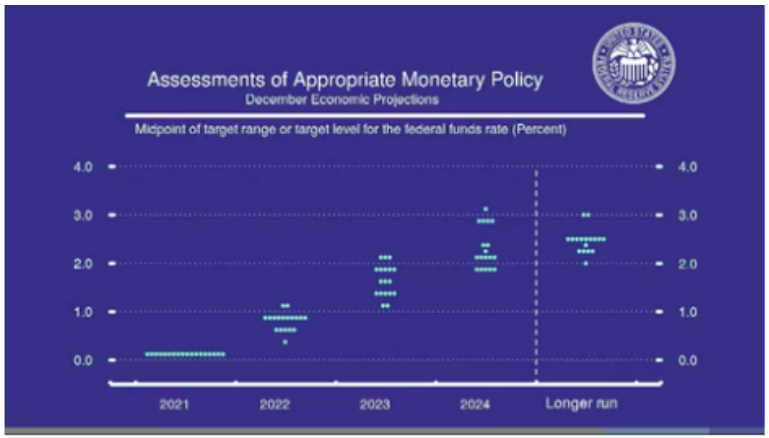
FOMC Press Conference December 15, 2021
Introductory Statement



FOMC Press Conference December 15, 2021
Introductory Statement



FOMC Press Conference December 15, 2021
Introductory Statement



FOMC Press Conference December 15, 2021
Introductory Statement

FOMC Economic Projections (w)

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assumptions of projected appropriate monetary policy, December 2021

Percent

Variable	Median[1]					Central Tendency[2]					Range[3]				
	2021	2022	2023	2024	Longer run	2021	2022	2023	2024	Longer run	2021	2022	2023	2024	Longer run
Change in real GDP	5.5	4.0	2.2	2.0	1.8	5.5	3.6–4.5	2.0–2.5	1.8–2.0	1.8–2.0	5.3–5.8	3.2–4.6	1.8–2.8	1.7–2.3	1.6–2.2
September projection	5.9	3.8	2.5	2.0	1.8	5.8–6.0	3.4–4.5	2.2–2.5	2.0–2.2	1.8–2.0	5.5–6.3	3.1–4.9	1.8–3.0	1.8–2.5	1.6–2.2
Unemployment rate	4.3	3.5	3.5	3.5	4.0	4.2–4.3	3.4–3.7	3.2–3.6	3.2–3.7	3.8–4.2	4.0–4.4	3.0–4.0	2.8–4.0	3.1–4.0	3.5–4.3
September projection	4.8	3.8	3.5	3.5	4.0	4.6–4.8	3.6–4.0	3.3–3.7	3.3–3.6	3.8–4.3	4.5–5.1	3.0–4.0	2.8–4.0	3.0–4.0	3.5–4.5
PCE inflation	5.3	2.6	2.3	2.1	2.0	5.3–5.4	2.2–3.0	2.1–2.5	2.0–2.2	2.0	5.3–5.5	2.0–3.2	2.0–2.5	2.0–2.2	2.0
September projection	4.2	2.2	2.2	2.1	2.0	4.0–4.3	2.0–2.5	2.0–2.3	2.0–2.2	2.0	3.4–4.4	1.7–3.0	1.9–2.4	2.0–2.3	2.0
Core PCE inflation[4]	4.4	2.7	2.3	2.1		4.4	2.5–3.0	2.1–2.4	2.0–2.2		4.4–4.5	2.4–3.2	2.0–2.5	2.0–2.3	
September projection	3.7	2.3	2.2	2.1		3.6–3.8	2.0–2.5	2.0–2.3	2.0–2.2		3.5–4.2	1.9–2.8	2.0–2.3	2.0–2.4	
Memo: Projected appropriate policy path															
Federal funds rate	0.1	0.9	1.6	2.1	2.5	0.1	0.6–0.9	1.4–1.9	1.9–2.9	2.3–2.5	0.1	0.4–1.1	1.1–2.1	1.9–3.1	2.0–3.0
September projection	0.1	0.3	1.0	1.8	2.5	0.1	0.1–0.4	0.4–1.1	0.9–2.1	2.3–2.5	0.1	0.1–0.6	0.1–1.6	0.6–2.6	2.0–3.0

NOTE: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The September projections were made in conjunction with the meeting of the Federal Open Market Committee on September 21–22, 2021. One participant did not submit longer-run projections for the change in real GDP, the unemployment rate, or the federal funds rate in conjunction with the September 21–22, 2021, meeting, and one participant did not submit such projections in conjunction with the December 14–15, 2021, meeting.

1. For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.
2. The central tendency excludes the three highest and three lowest projections for each variable in each year.
3. The range for a variable in a given year includes all participants' projections, from lowest to highest, for that variable in that year.
4. Longer-run projections for core PCE inflation are not collected.

https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm

FOMC Economic Projections: 2021-24

Figure 1. Medians, central tendencies, and ranges of economic projections, 2021–24 and over the longer run

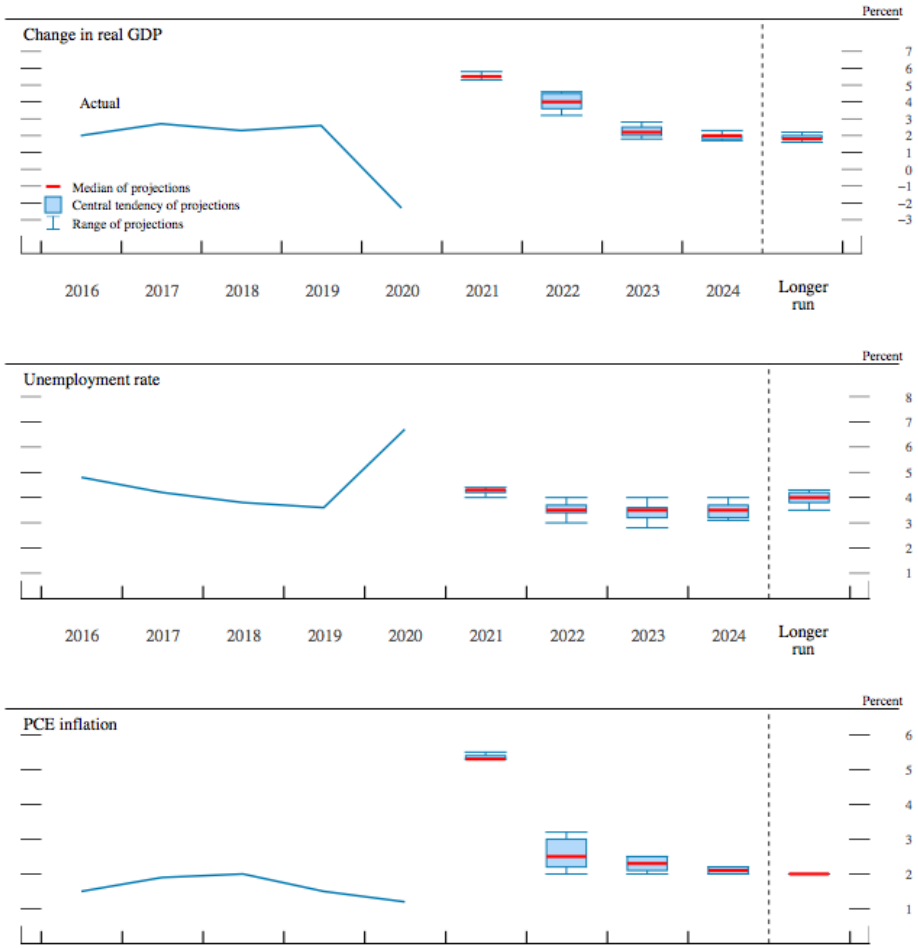
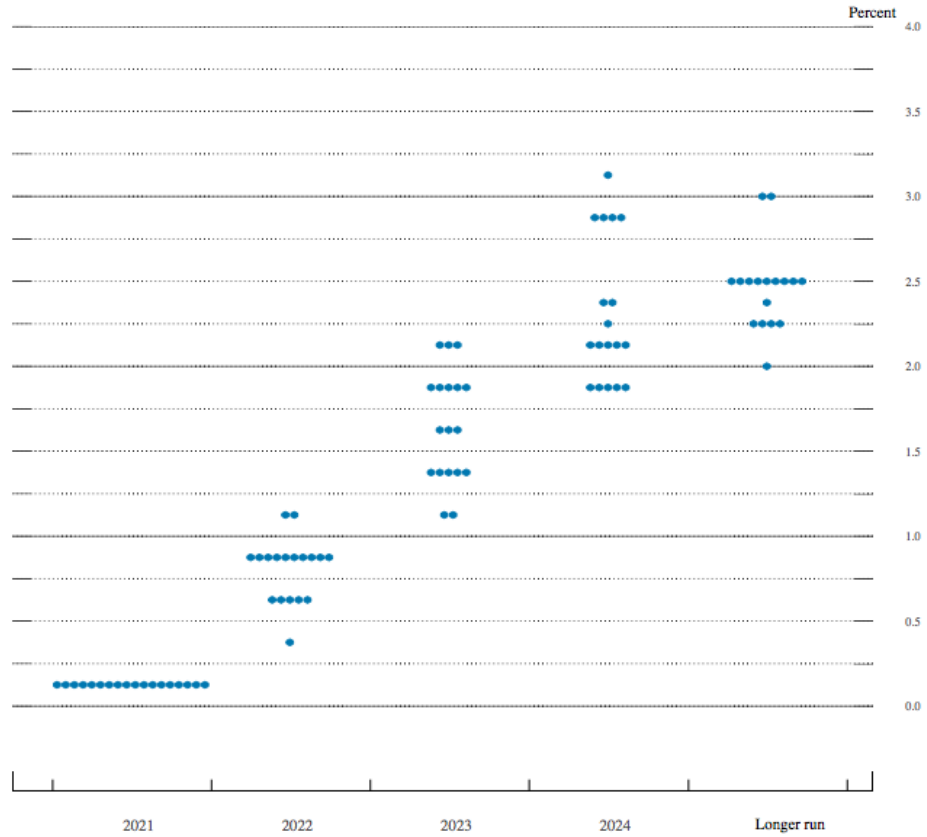


Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate



https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm

The Conference Board Economic Outlook (w)

	2020				2021				2022				2020*	2021	2022	2023
	I Q*	II Q*	III Q*	IV Q*	I Q*	II Q*	III Q	IV Q	I Q	II Q	III Q	IV Q	ANNUAL	ANNUAL	ANNUAL	ANNUAL
Real GDP	-5.1	-31.2	33.8	4.5	6.3	6.7	2.1	6.5	2.2	3.1	2.9	2.8	-3.4	5.6	3.5	2.9
Real Disposable Income	3.1	48.5	-16.6	-8.3	54.7	-29.1	-4.0	0.0	1.0	1.5	1.7	2.0	6.2	2.6	-1.9	2.2
Real Consumer Spending	-6.9	-33.4	41.4	3.4	11.4	12.0	1.7	5.1	2.5	2.9	2.4	2.1	-3.8	8.0	3.5	2.6
Residential Investment	20.3	-30.8	60.0	34.4	13.3	-11.7	-8.3	1.0	2.0	3.0	2.5	2.0	6.8	9.1	-0.2	1.5
Nonresidential investment	-8.1	-30.3	18.7	12.5	12.9	9.2	1.5	4.6	5.0	5.2	4.8	4.8	-5.3	7.5	4.7	4.4
Inventory Change (bln chn '12$)	-30	-253	25	89	-88	-169	-73	45	50	55	60	65	-42	-71	58	40
Total Gov't Spending	3.7	3.9	-2.1	-0.5	4.2	-2.0	0.9	2.0	2.5	3.0	3.8	4.1	2.5	0.8	2.3	4.2
Exports	-16.3	-59.9	54.5	22.5	-2.9	7.6	-3.0	2.0	2.0	6.1	5.1	4.0	-13.6	3.6	3.0	4.4
Imports	-13.1	-53.1	89.2	31.3	9.3	7.1	5.8	5.0	6.0	6.0	5.0	4.0	-8.9	13.3	5.6	4.1
Unemployment Rate (%)	3.8	13.1	8.8	6.8	6.2	5.9	5.1	4.3	4.0	3.8	3.7	3.6	8.1	5.4	3.8	3.3
PCE Inflation (%Y/Y)	1.7	0.6	1.2	1.2	1.8	3.9	4.3	5.4	4.6	3.5	3.0	2.8	1.2	3.8	3.5	3.0
Core PCE Inflation (%Y/Y)	1.8	1.0	1.5	1.4	1.7	3.4	3.6	4.4	4.3	3.6	3.2	2.9	1.4	3.3	3.5	3.0

Note: Percentage Change, Seasonally Adjusted Annual Rates.

https://www.conference-board.org/research/us-forecast

Bureau of Economic Analysis: Economy at a Glance (w)

	2018	2019	2020	2019			2020				2021		
				Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3
Production *Percent change at seasonally adjusted annual rate (unless otherwise noted)*													
Gross domestic product*	2.9	2.3	-3.4	3.2	2.8	1.9	-5.1	-31.2	33.8	4.5	6.3	6.7	2.3
Purchases, by type													
Gross domestic purchases*	3.1	2.4	-3.0	3.6	2.6	0.5	-4.9	-30.8	37.8	6.1	7.7	6.7	3.5
Personal consumption expenditures*	2.9	2.2	-3.8	3.6	3.2	1.7	-6.9	-33.4	41.4	3.4	11.4	12.0	2.0
Nonresidential fixed investment*	6.4	4.3	-5.3	6.7	2.9	-1.7	-8.1	-30.3	18.7	12.5	12.9	9.2	1.7
Residential investment*	-0.6	-0.9	6.8	4.1	3.6	1.1	20.4	-30.7	59.9	34.4	13.3	-11.7	-7.7
Exports of goods and services*	2.8	-0.1	-13.6	-2.2	-0.8	1.2	-16.3	-59.9	54.5	22.5	-2.9	7.6	-5.3
Imports of goods and services*	4.1	1.2	-8.9	1.7	-1.1	-8.5	-13.1	-53.1	89.2	31.3	9.3	7.1	4.7
Government consumption expenditures and gross investment*	1.4	2.2	2.5	5.0	2.1	3.0	3.7	3.9	-2.1	-0.5	4.2	-2.0	0.9
Prices of													
Gross domestic purchases	2.3	1.5	1.2	2.2	1.0	1.3	1.6	-1.2	3.3	1.8	3.9	5.8	5.6
Personal consumption expenditures	2.1	1.5	1.2	2.7	1.1	1.7	1.3	-1.6	3.7	1.5	3.8	6.5	5.3
Gross domestic product	2.4	1.8	1.3	2.3	1.4	1.5	1.6	-1.5	3.6	2.2	4.3	6.1	6.0
Personal Income *Billions of dollars, seasonally adjusted annual rate (unless otherwise noted)*													
Real disposable personal income in the U.S.*	3.4	2.3	6.2	-1.4	2.3	2.4	3.1	48.5	-16.6	-8.3	54.7	-29.1	-4.3
Personal saving rate (level, not change)	7.6	7.6	16.6	7.3	7.2	7.3	9.6	26.1	16.0	13.6	20.5	10.9	9.5
Federal government finances													
Receipts[a]	3569.0	3713.7	3684.5	3706.0	3708.9	3763.4	3751.2	3481.1	3690.5	3815.1	3982.6	4177.8	4303.6
Current expenditures[a]	4497.1	4761.1	6794.5	4739.1	4789.8	4823.8	4909.2	9106.7	7206.8	5955.2	8071.4	7490.5	6560.4
Net Federal Government saving	-928.1	-1047.5	-3110.0	-1033.2	-1080.9	-1060.4	-1150.8	-5625.6	-3516.3	-2140.1	-4088.9	-3312.7	-2256.7
State and local government finances													
Receipts[a]	2650.6	2793.1	3096.6	2811.4	2810.2	2824.8	2856.3	3550.7	2979.2	3000.2	3100.7	4031.4	3511.7
Current expenditures[a]	2846.4	2942.1	3020.5	2935.7	2960.7	2977.9	2990.8	2997.2	3045.5	3048.4	3112.5	3202.7	3306.1
Net state and local government saving	-195.8	-149.0	76.1	-124.4	-150.5	-153.0	-134.6	553.6	-66.3	-48.2	-11.8	828.7	205.6
Inventories													
Change in private inventories*	....	....	-42.3	49.4	44.0	-1.1	-80.9	-252.8	25.3	88.8	-88.3	-168.5	-66.8
Ratio, Inventories to final sales*	...	....	....	2.59	2.58	2.56	2.60	2.84	2.63	2.62	2.53	2.42	2.41
Balance of payments													
Goods and services[a]	-579937.0	-576341.0	-676684.0	-152210.0	-149658.0	-129759.0	-100343.0	-134248.0	-158549.0	-187101.0	-196787.0	-212759.0	-212759.0
Current account[a]	-449693.0	472146.0	-616095.0	-127691.0	-121594.0	-104324.0	-143949.0	-153866.0	-172362.0	-175079.0	-189424.0	-190282.0	-190282.0

https://www.bea.gov/news/glance

Bureau of Labor Statistics: Economy at a Glance (w)

United States - Monthly Data

Data Series	Back Data	June 2021	July 2021	Aug 2021	Sept 2021	Oct 2021	Nov 2021
Unemployment Rate(1)		5.9	5.4	5.2	4.8	4.6	4.2
Change in Payroll Employment(2)		962	1,091	483	379	(P) 546	(P) 210
Average Hourly Earnings(3)		30.44	30.55	30.67	30.84	(P) 30.95	(P) 31.03
Consumer Price Index(4)		0.9	0.5	0.3	0.4	0.9	0.8
Producer Price Index(5)		0.9	0.9	(P) 0.6	(P) 0.6	(P) 0.6	(P) 0.8
U.S. Import Price Index(6)		1.1	0.3	-0.2	0.4	(R) 1.5	(R) 0.7

Footnotes
(1) In percent, seasonally adjusted. Annual averages are available for Not Seasonally Adjusted data.
(2) Number of jobs, in thousands, seasonally adjusted.
(3) Average Hourly Earnings for all employees on private nonfarm payrolls.
(4) All items, U.S. city average, all urban consumers, 1982-84=100, 1-month percent change, seasonally adjusted.
(5) Final Demand, 1-month percent change, seasonally adjusted.
(6) All imports, 1-month percent change, not seasonally adjusted.
(P) Preliminary
(r) Revised

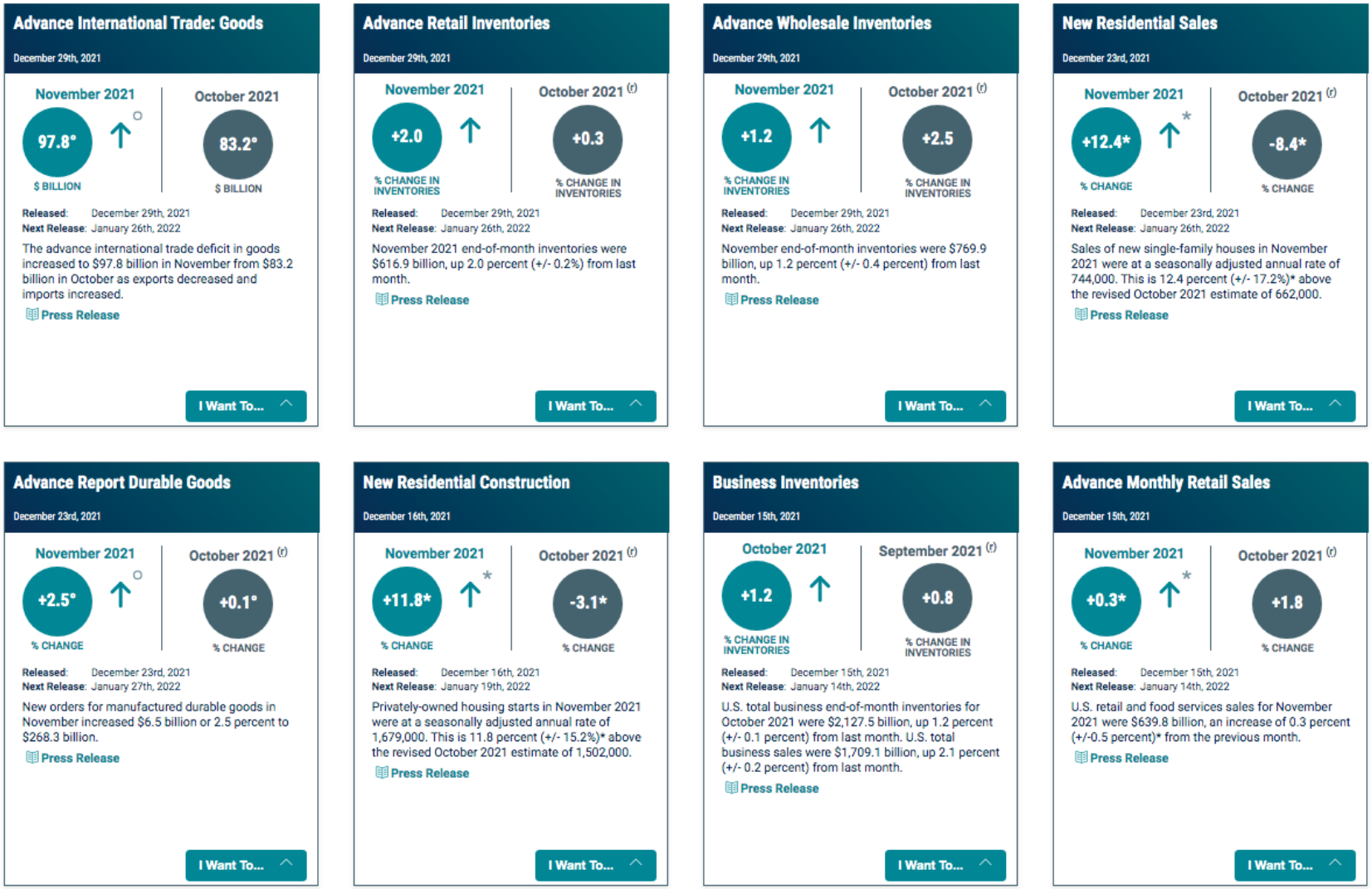
United States - Quarterly Data

Data Series	Back Data	3rd Qtr 2020	4th Qtr 2020	1st Qtr 2021	2nd Qtr 2021	3rd Qtr 2021
Employment Cost Index(1)		0.5	0.7	0.9	0.7	1.3
Productivity(2)		4.6	-3.4	4.3	2.4	(R) -5.2

Footnotes
(1) Compensation, all civilian workers, quarterly data, 3-month percent change, seasonally adjusted.
(2) Output per hour, nonfarm business, quarterly data, percent change from previous quarter at annual rate, seasonally adjusted.
(r) Revised

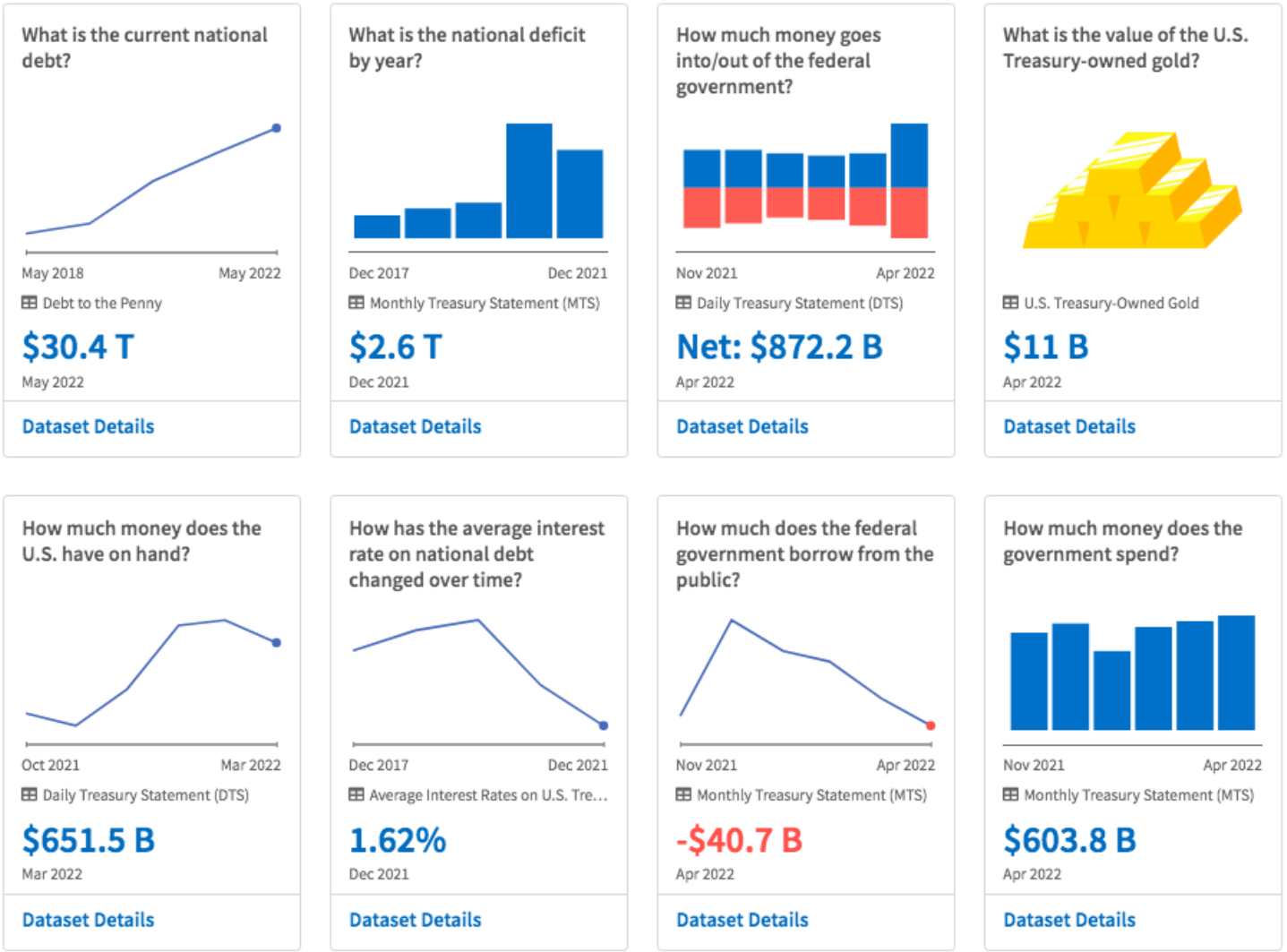
https://www.bls.gov/eag/eag.us.htm

Census Bureau: Economic Indicators (w)



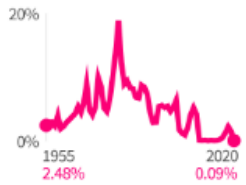
https://www.census.gov/economic-indicators/

Federal Government: Fiscal Data (w)



https://fiscaldata.treasury.gov/

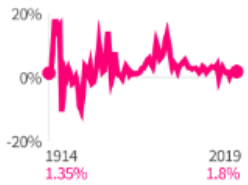
USA Facts Economic Indicators (w)



Federal funds interest rate

0.09%

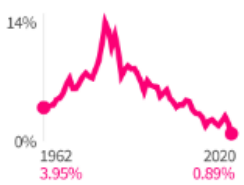
2020



Average inflation rate

1.8%

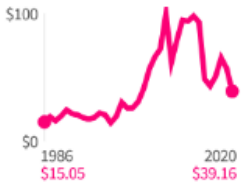
2019



10-year Treasury constant maturities interest rate

0.89%

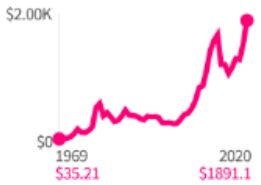
2020



Crude oil spot price

$39.16

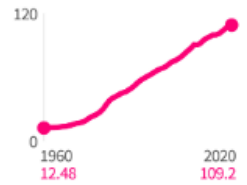
2020



Gold price per troy ounce

$1,891.1

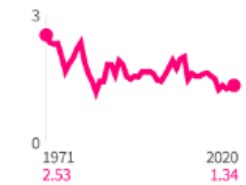
2020



Consumer price index for all goods, where 2015 prices equal 100

109.2

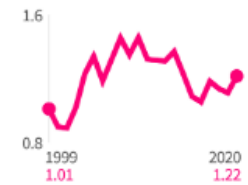
2020



USD per 1 GBP

1.34

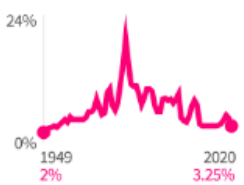
2020



USD per 1 Euro

1.22

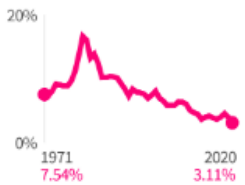
2020



Prime loan interest rate

3.25%

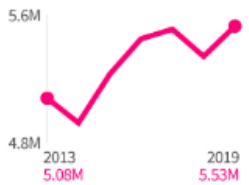
2020



30-year average interest on fixed-rate mortgages

3.11%

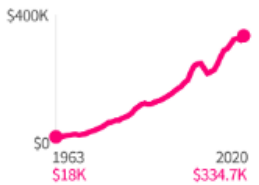
2020



Existing home sales

5.53 million

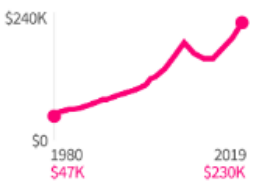
2019



Median new home sale price

$334,700

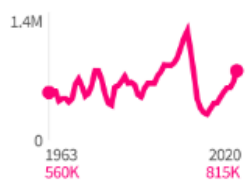
2020



Median home value

$230,000

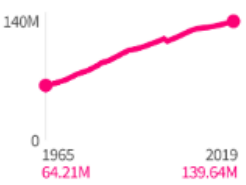
2019



New home sales

815,000

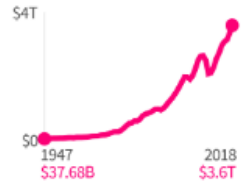
2020



Housing units

139.64 million

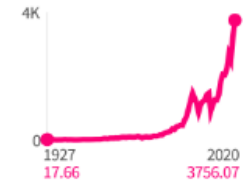
2019



Private fixed investment

$3.6 trillion

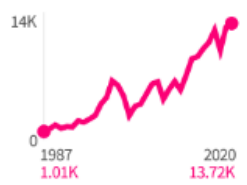
2018



Stock index: S&P 500

3,756.07

2020



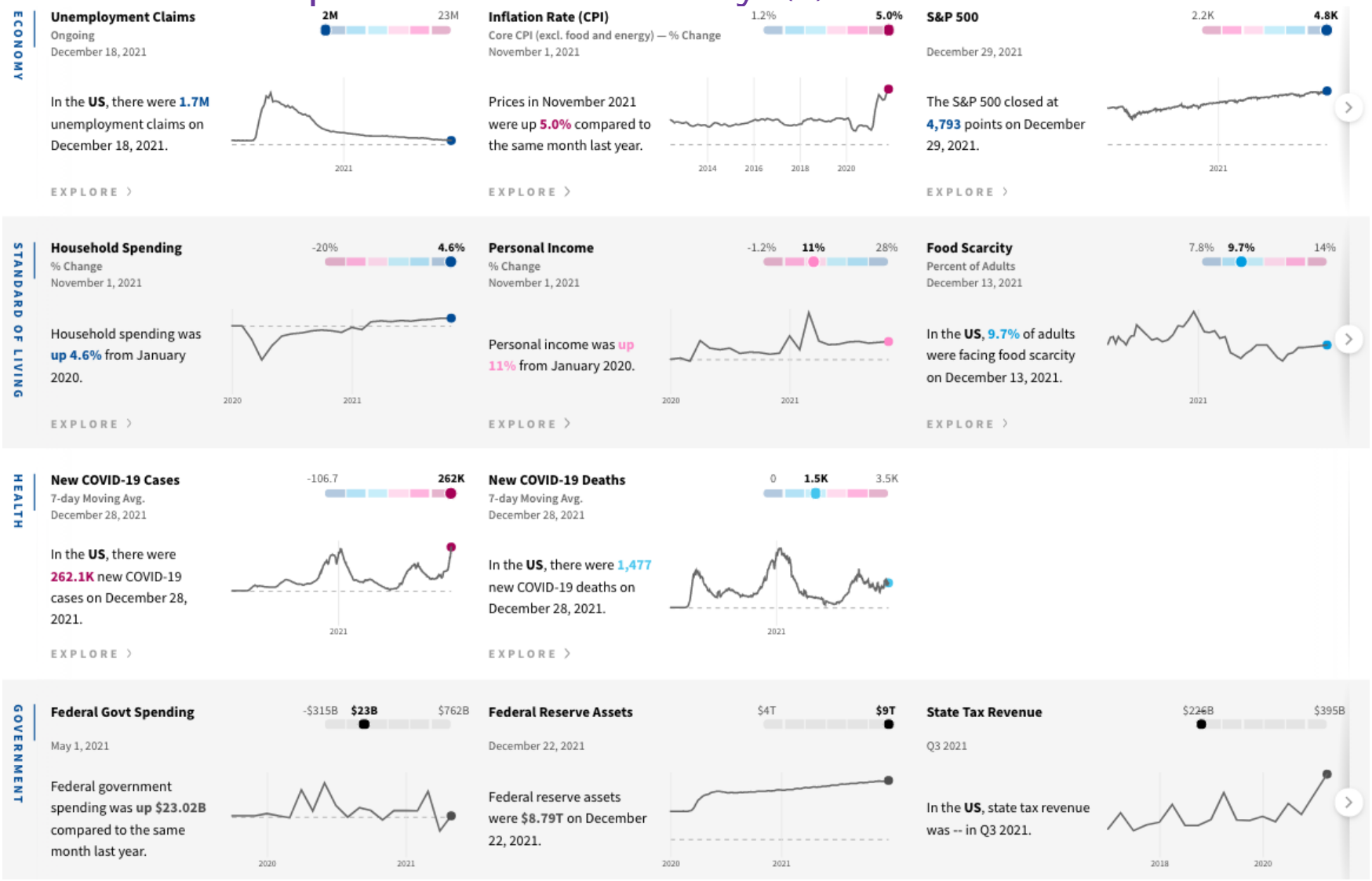
Stock index: DAX

13,718.78

2020

https://usafacts.org/data/topics/economy/economic-indicators/

COVID-19 Impact and Recovery (w)



https://usafacts.org/covid-recovery-hub/

U.S. Official Economic Indicators

Available from April 1995 forward, this monthly publication is prepared by the U.S. Council of Economic Advisers for the Joint Economic Committee. It provides economic information on gross domestic product, income, employment, production, business activity, prices, money, credit, security markets, Federal finance, and international statistics. Economic Indicators back to 1948 are made available through the Federal Reserve Archival System for Economic Research. FRASER is provided through a partnership between GPO and the Federal Reserve Bank of St. Louis.

`https://www.govinfo.gov/app/collection/ECONI`

Federal Reserve Banks: U.S. Economy

U.S. Economic Conditions Reports

- https://www.dallasfed.org/research/US
- https://www.newyorkfed.org/research/snapshot
- https://www.frbsf.org/economic-research/publications/fedviews
- https://www.bostonfed.org/publications/presidents-reports.aspx
- https://www.kansascityfed.org/data-and-trends/economic-conditions

U.S. Economy Data and Indicators

- https://www.federalreserve.gov/data.htm
- https://nationaleconomicsummary.bostonfed.org
- https://stlouisfed.shinyapps.io/macro-snapshot
- https://www.chicagofed.org/research/data/index
- https://www.philadelphiafed.org/surveys-and-data
- https://www.newyorkfed.org/research/data_indicators
- https://www.dallasfed.org/Home/research/econdata.aspx
- https://www.atlantafed.org/research/data-and-tools.aspx
- https://www.frbsf.org/economic-research/indicators-data
- https://www.clevelandfed.org/our-research/indicators-and-data.aspx

FRBSF Macroeconomics Data Post

Topics related to aggregate economic measures, the role of the U.S. government and its policies, financial markets, and monetary policy.
https://www.frbsf.org/education/teacher-resources/datapost/

- Gross Domestic Product: Measuring the Nation's Output
- Inflation: Measuring Price Changes
- Unemployment Rate: Measuring the Workforce
- Labor Force Participation Rates: Measuring Workforce Engagement
- Government Spending: Measuring Federal Expenditures
- Personal Saving Rate: Delayed Consumption
- The Money Supply: Measuring M1 & M2
- International Trade Patterns: U.S. Imports

Outline

Macroeconomics in One Equation: MV=PY

The Quantity Theory of Money (QTM) is an economic theory relating the price of the goods and services to the quantity of money in circulation for them. It provides a monetary perspective of economic transactions.

1. M – money quantity: How many dollars in the economy are available to exchange for the goods and services?
2. V – transaction velocity: How many transactions occur in each period? Payment technology can affect transaction frequency.
3. P – the price of the goods and services in exchange.
4. Y – the quantity of the goods and services in exchange.

QTM applies to any single transaction as well as all economic transactions.Throughout our study of Macroeconomics, this equation helps us connect the dots of all chapters.

QTM: Origin and Evolution

The theory was originally formulated by Polish mathematician Nicolaus Copernicus in 1517, and was influentially restated by philosophers John Locke, David Hume, Jean Bodin. The theory experienced a large surge in popularity with economists Anna Schwartz and Milton Friedman's book A Monetary History of the United States, published in 1963 (Source: Wikipedia).

- As developed by the English philosopher John Locke in the 17th century, the Scottish philosopher David Hume in the 18th century, and others, it was a weapon against the mercantilists, who were thought to equate wealth with money.
- If the accumulation of money by a nation merely raised prices, argued the quantity theorists, then a "favourable" balance of trade, as desired by mercantilists, would increase the supply of money but not wealth.
- In the 19th century the quantity theory contributed to the ascendancy of free trade over protectionism. In the 19th and 20th centuries it played a part in the analysis of business cycles and in the theory of foreign exchange rates.

`https://www.britannica.com/topic/quantity-theory-of-money`

QTM: Intuition and Examples

- The quantity theory of money states that the quantity of money in circulation bears a direct, proportional relationship to the price of the goods and services in transactions.
- Consider a simple example: an economy produce only one good and use one dollar to measure its value. What should be the price of the good?
- All else equal, what should be the price of the good if a hundred dollar were used? And the unit price were two identical goods produced?
- In principle, QTM sets an exchange equation. The equation works well to explain the price of the goods and services. It also helps to understand the exchange rate between two currencies.
- Suppose an apple costs one dollar in the US but a hundred yen in Japan, then the exchange rate should be one dollar for a hundred yen.
- In Macroeconomics, we apply this equation to the analysis of the overall economy, but in a reverse order.

QTM: The Output Y

- In MV=PY, the total amount of goods, services, and assets available for exchange in the economy is Y.
- How do economists measure the aggregate output in an economy?
- National income or aggregate output is the total amount of goods and services produced in an economy. The most common measure of the size of an economy is GDP (gross domestic product).
- The (percentage) change of national income over time can measure economic growth. The fluctuation of aggregate output in a shorter horizon constitutes business cycles.
- From the expenditure (demand) side of the economy, national income can be decomposed into consumption, investment, government spending, and net export. From the production (supply) side of the economy, national income is derived from input factors, including labor market conditions, capital formation and utilization, and production technology.

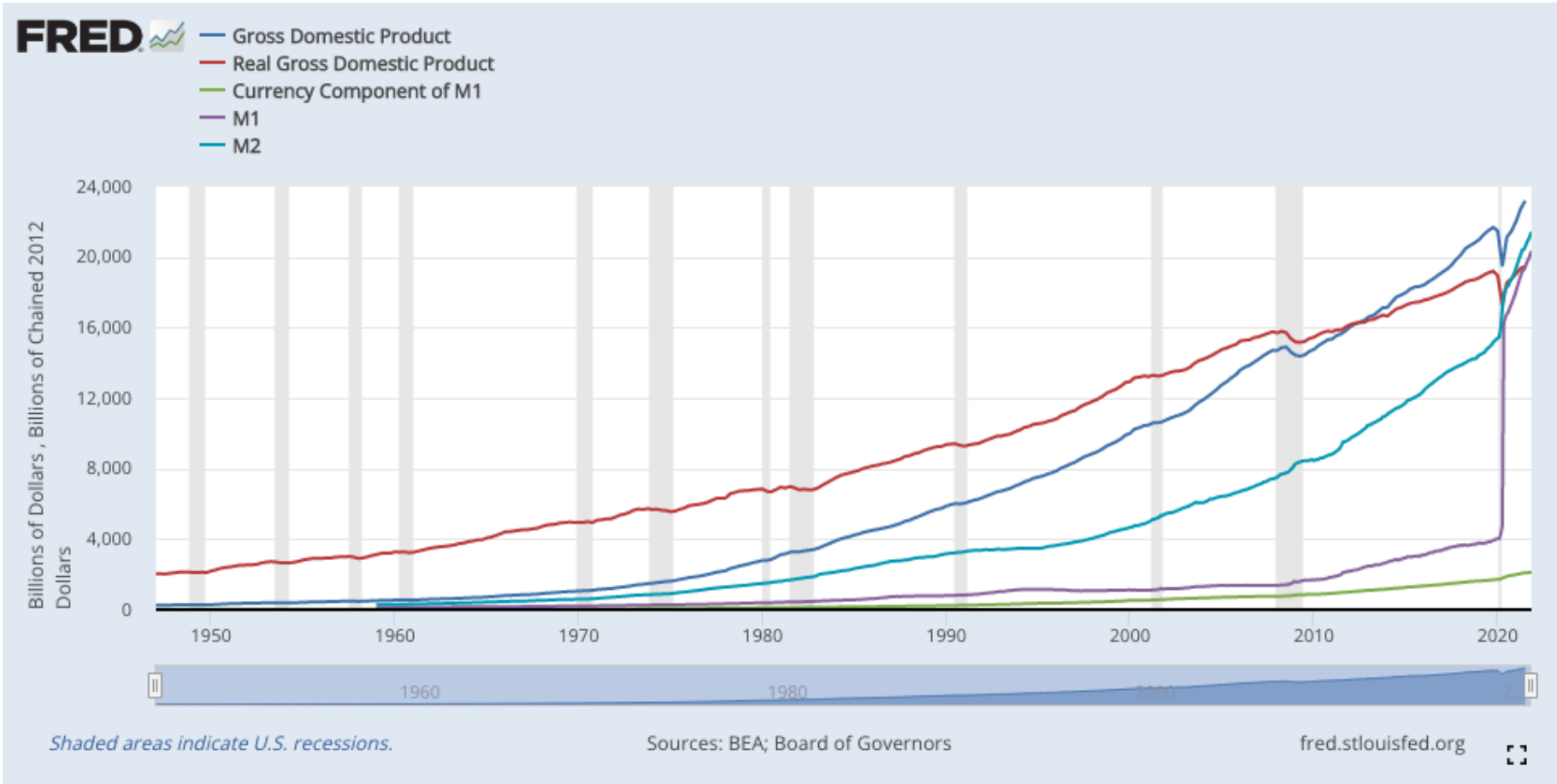
QTM: The Price Level P

- In MV=PY, the overall price level is P. The price level in the economy determines people's living costs and compensations.
- How do economists measure the price level and the living costs?
- The technique is to construct a price index. Economists choose a fixed basket of goods and services representing the economy, measuring its market value over time with the base year indexed as 100.
- Popular measurements: Consumer Price Index (CPI) and core CPI (excluding food and energy), Personal Expenditure (PCE) and core PCE, and Producer Price Index (PPI).
- If an economy experiences increasing price level, goods and services are becoming more expensive, though the real quantity does not increase. The overall rise in the price level is called inflation. The percentage change of the price level is a measure of inflation.
- More essentially, what cause(s) rising price levels? What are the effects? What are the policy implications and measures to keep the price stable?

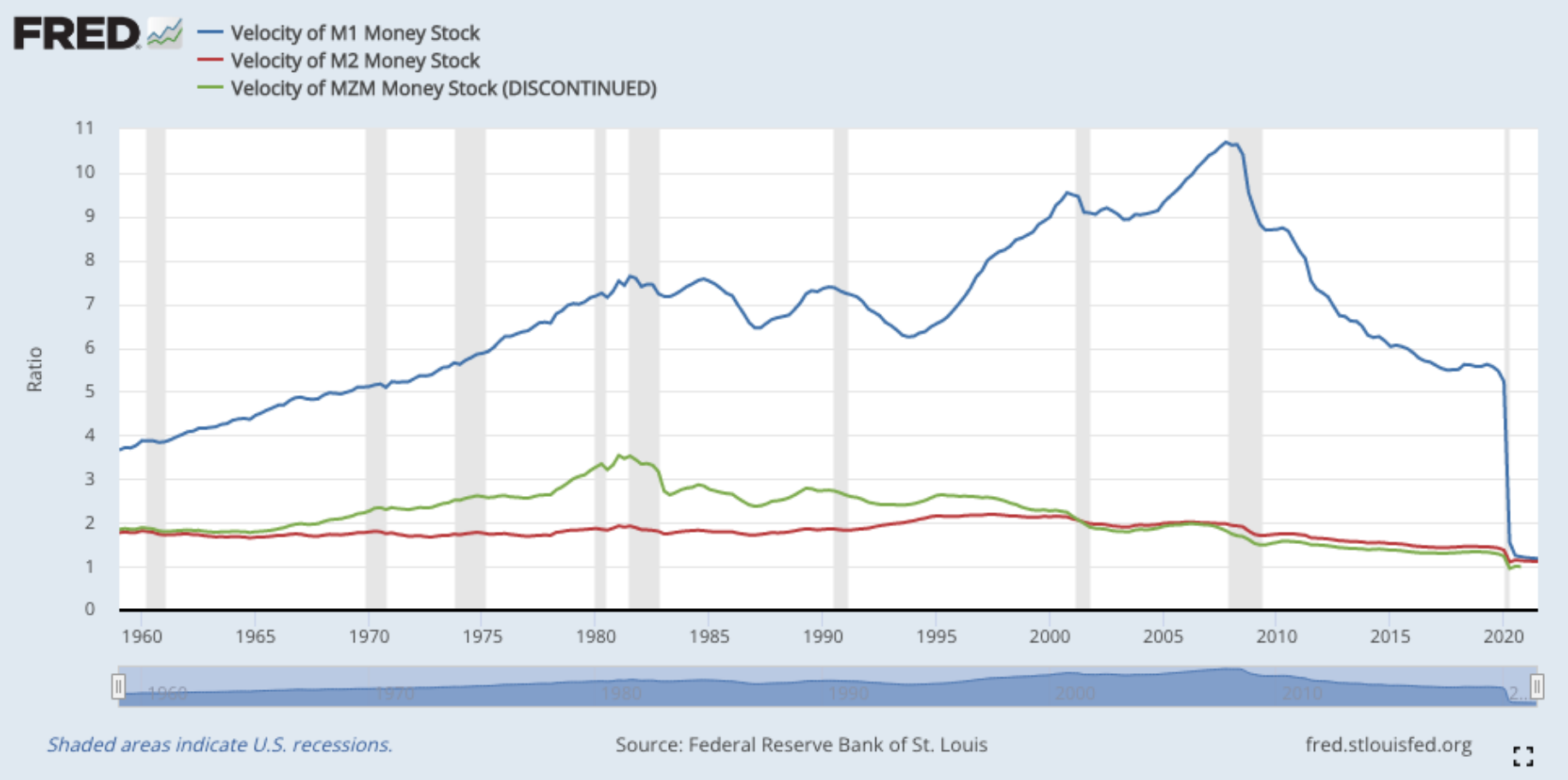
QTM: Money M and Velocity V

- In MV=PY, the quantity of money in circulation for market change is M. What is money? Why do we need money? What are the functions of money? Where are the money coming from? And how do economists measure the quantity of money in the economy?
- The velocity of money V is a measure of the number of times that the average unit of currency is used to purchase goods and services within a given time period. The concept relates the size of economic activity to a given money stock, and the speed of money exchange is one of the variables that determine price levels.
- The measure of V is usually the ratio of the national income to its money stock. If V is increasing, then transactions are occurring more frequently. The velocity of money changes over time and is influenced by a variety of factors. `https://en.wikipedia.org/wiki/Velocity_of_money`
- Finally, what is monetary policy? Who are responsible for conducting monetary policy? What are the effects and outcomes of various monetary policy? How do economists evaluate and inform monetary policy?

QTM Measurements: Output and Money



QTM Measurements: Velocity of Money



MV=PY: Aggregate Causes and Effects

In the quantity equation, holding some variables constant enables us, in turn, to explain the change in other variables.

- V, Y constant, M+ $\Rightarrow$ P+; M– $\Rightarrow$ P–.
- M, V constant, Y+ $\Rightarrow$ P–; Y– $\Rightarrow$ P+.
- M, Y constant, V+ $\Rightarrow$ P+; V– $\Rightarrow$ P–.
- In the short run, macroeconomists assume price rigidity (not flexible); in the long run, price level is fully adjustable. Hence, P is determined.
- In QTM, what are the causes of inflation in the long run?
- Money neutrality assumed, P is determined by changes in M, V and Y, but not vice versa. In reality, P can affect others.
- Deep question: what determine the change in M,V and Y?
- The AD-AS model can explain the effects of M on P and Y, in the short run, the median run, and the long run.

Macroeconomics: A Set of Four Measurements

Macroeconomics consists of two pairs of measurement variables. Being able to differentiate them is crucial for performing economic and financial analysis.

1. Flow variable is a value measured in a given period of time.
2. Stock variable is a value measured at an instant of time.
3. Nominal variable is a value measured in monetary units/prices.
4. Real variable is a value measured in terms of quantity and quality.

The difference between the flow and stock variables arises from the notion of time. Flow variables are measured in a time interval, whereas stock variables are measured at a specific point in time.

The distinction between the nominal and real variables is a result of the introduction of money. In our monetary world, economic values are measured and standardized in monetary units by convention or by law.

Flow v.s. Stock Variables

In economics and finance, flow and stock variables keep track of economic values over time in perspective. The accumulation of the flow variable, netting out its "leakages," becomes the stock value. This relationship is applied in almost all economic and financial measurements.

1. Income and Wealth
2. Investment and Capital
3. Government Deficit and Debt
4. International Trade Deficit and Debt
5. Income statement vs Balance sheet (Accounting)
6. Balance of payment vs Net Wealth Position (International Finance)

Suppose there is a time line recording flow values at the end of each period, by the end of any given period, the stock value would equal the sum of all previous flow values recorded. In Probability and Statistics, these two concepts correspond to probability $P(X = x_i)$ and cumulative probability $P(X \leq x_i)$.

Nominal v.s. Real Variables

In economics, nominal value is expressed in monetary terms (in units of a currency). By contrast, real value adjusts nominal value to remove the effects of price level change in the economy. More fundamentally, a real variable is measured in terms of the quantity of goods and services. The five most pivotal real variables in macroeconomics and finance are:

1. Real income (NI/P): goods and services produced in a period.
2. Real wage (W/P): the amount of goods and services that the monetary or nominal wage can afford.
3. Real money balance (M/P): the purchasing power of money in terms of the amount of goods and services.
4. Real exchange rate ($RE = E * P_F / P_H$): the amount of domestic goods and services that a foreign currency can purchase.
5. Real interest rate ($r = i - \pi$): the rate of return for goods and services, which equals nominal interest rate minus inflation rate.

QTM: Market Equilibrium View

- Like any other identifies, the quantity equation of money is always true.
- But it is a powerful tautology. The left hand side of the equation is total monetary value recorded in transactions. The right hand side is the total market value of goods and services in exchange.
- Most economists consider M as money supply determined by the monetary policy. That's not correct.
- Recall that the demand and supply model characterizes market equilibrium. Neither demand nor supply can determine an equilibrium. It takes both to settle its value.
- Money demand and money supply are determined by (functions of) other variables. An equilibrium view requires economists to study them separately and solve them jointly.
- In sum, M is the quantity of money in circulation in the economy for market exchange. It is not equivalent to money supply but is an equilibrium quantity where demand and supply intersect, in theory.

QTM: General Equilibrium View

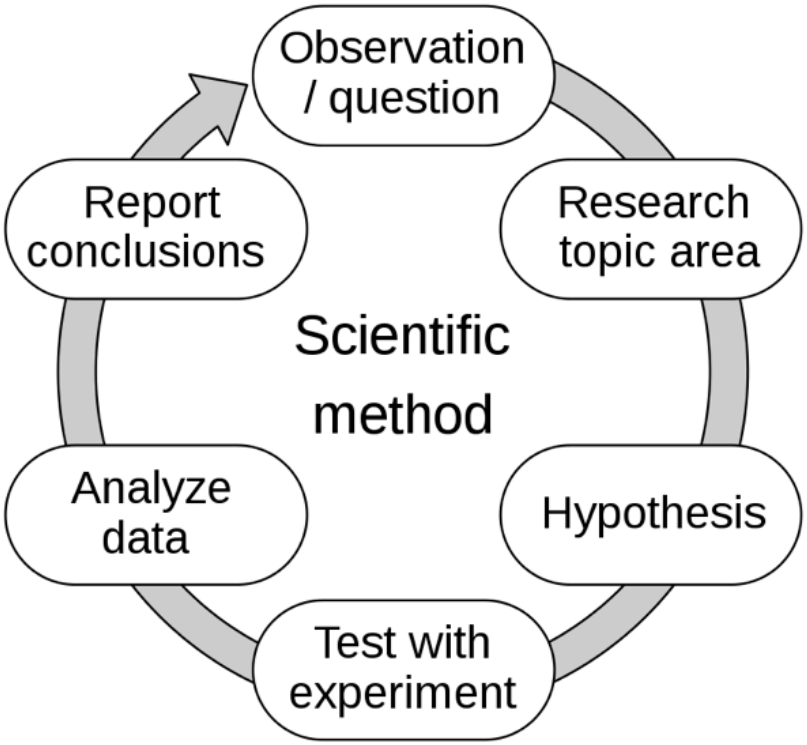
- In Microeconomics (price theory), the demand and supply model is the only equilibrium model that can be applied to all types of markets: goods market, labor market, real estate market, and financial markets.
- It is important to note that there is a distinction between the money market and the capital market in Finance (Interest Theory).
- Money market applies to short term financial borrowing and lending activities within a year, whereas capital market refers to long term loanable funding transactions greater than one year.
- Money demand and supply determines market interest rates in equlibrium.
- In Macroeconomics (money theory), the output market and money market constitute the closed-economy general equilibrium. The Keynesian IS-LM model is derived from the simultaneous equilibrium in the two markets.
- In International Finance and Macroeconomics, via the foreign exchange market, the general equilibrium in an open economy consists of simultaneous convergence among all three markets.

Outline

The Nature of Economics

- Economics is a decision-making social science.
- Science is human intellectual inquiry into understanding the universe.
- Science can help discover underlying patterns, explain causes and effects, enlighten and change the world.
- Scientists follow principles and standards guided by scientific methods. Hence, people trust science because of its reliability and validity.
- The scientific method requires scientists to derive abstract theory based on certain assumptions to help explain how a complex real world operates.
- More importantly, scientists subject theories and models to empirical tests. Therefore, scientists can develop, reject, refine theories, and apply them in practice.
- Akin to other sciences, Economics consists of explanations (theories and models) that help us understand and make valid predictions about the real world, together with the empirical evidence for and against them.

Scientific Method and Procedure



https://en.wikipedia.org/wiki/Scientific_method

The scientific method involves careful observation, applying rigorous skepticism about what is observed, given that cognitive assumptions can distort how one interprets the observation.

It involves 1) formulating hypotheses, via induction, based on such observations; 2) experimental and measurement-based testing of deductions drawn from the hypotheses; and 3) refinement (or elimination) of the hypotheses based on the experimental findings.

Scientific Principles and Procedures

"Science is the great antidote to the poison of enthusiasm and superstition."

1. Science distinguishes a law or theory from facts.
2. The universe has its own objective laws (not random).
3. Data/facts cannot be self-explanatory (not ad hoc).
4. It requires abstract theory to explain (not tautology).
5. A valid theory stands examinations and tests.

1. Start from the real life observation and data, trying to explain
2. State the postulate, make assumptions, and develop a theory
3. Derive testable or refutable implications from the model
4. Collect and process data, design experiment to test the theory
5. Reject or accept; improve and apply the theory in practice

Macroeconomic Research: Components

1. The goal is to make general statements about how the economy works.
2. Macroeconomic theory: a set of ideas about the economy, based on assumptions and organized in a logical framework
3. Macroeconomic model: a simplified description and explanation of some aspect of the economy
4. Empirical test: a statistical procedure to examine how consistent and robust is the model to explain the data
5. Theoretical and empirical research are necessary for economic analysis, forecasting, and policy evaluation.

Usefulness of economic theory or models depends on reasonableness of assumptions, possibility of being applied to real problems, empirically testable implications, and theoretical results consistent with real-world data

Macroeconomic Research: Procedures

Data and Research: Developing and Testing an Economic Theory

1. Examine the data, analyze the patterns, and "tell your story"
2. State the research question. Why is it interesting and important?
3. Make provisional assumptions that describe the economic setting and the behavior of the economic actors.
4. Work out the implications of the theory. Following the logic of its assumptions and model solution, what would happen to Y if X changes?
5. Conduct an empirical analysis to compare the implications of the theory with the data.
6. Evaluate the results of your comparisons. If the theory fits the data well, use the theory to predict what would happen if the economic setting or policies change.

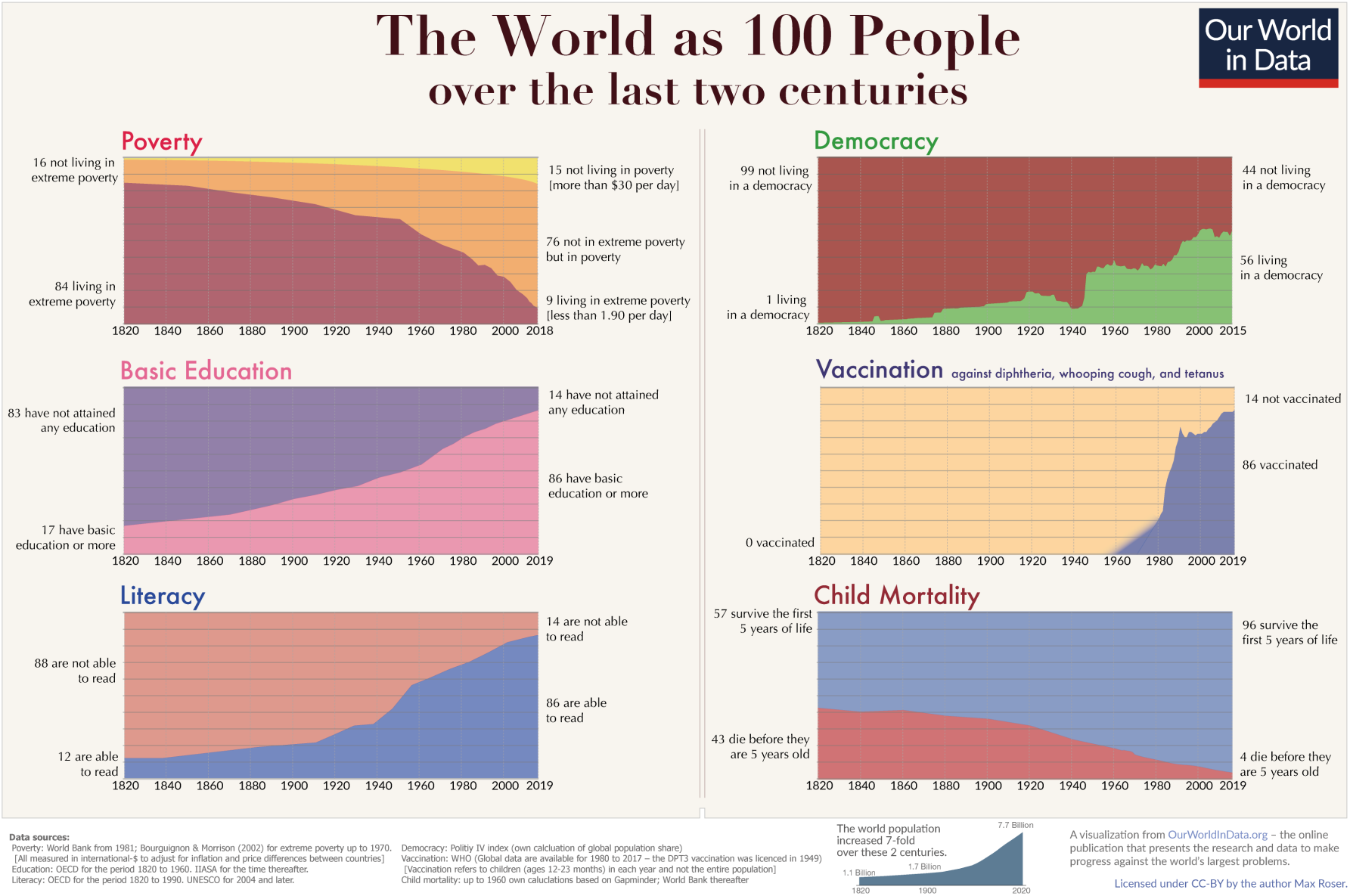
Source: Adapted from Abel, Bernanke, and Croushore (2020) Macroeconomics, 10e, Pearson.

Economic Data and Measurements

"Data is a valuable asset and can be the world's most valuable resource."

- Data (facts/observations/phenomena/statistics) are information collected for reference or analysis (for decision-making purposes).
- As a collection of measurements or observations, data can be divided into two different types: qualitative and quantitative.
- Quantitative, or numerical, data can be broken down into two types: discrete and continuous.
- Qualitative data describes the qualities of data points and is non-numerical. It's used to define the information and can also be further broken down into sub-categories through the four scales of measurement.
- Scales of measurement is how variables are defined and categorized. Psychologist Stanley Stevens developed the four common scales of measurement: nominal, ordinal, interval and ratio.

`https://studyonline.unsw.edu.au/blog/types-of-data`



https://ourworldindata.org/a-history-of-global-living-conditions-in-5-charts

Time Series Data in Macroeconomics

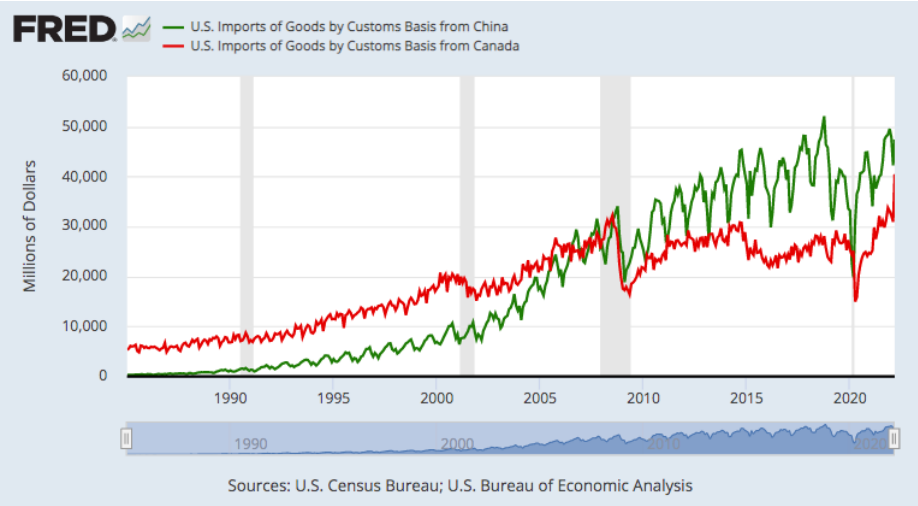
Most macroeconomic indicators are time series data. In plain English, it is a sequence of data observations collected over time. Four core properties:

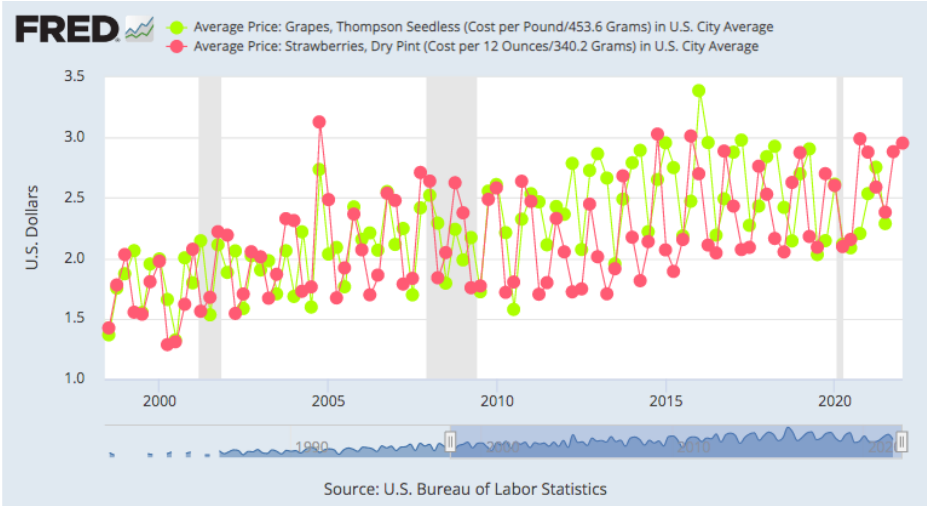
1. The trend. In any time series, the trend is the slow change in the series over a long period.
2. The cycle. In most economic forecasting, the growth rate of a variable is of economists' interest. Growth rates can be calculated from the percentage change in the value of the series from one period to another.
3. Seasonality. There are cyclical patterns that repeat over units of time (e.g., daily, weekly, monthly). Remove seaonal variation before release.
4. Random variation. Not every part of a time series can be explained by a trend, cycle, or seasonal pattern. What's left over are just random movements that can't be predicted.

For most economic data, macroeconomists care about the trend and the cycle but not the seasonal variation, since that represents patterns that are independent of overall economic health. However, excess volatility poses risk.

Source: A lesson on time series to get you started with FREDcast. 2019. The FRED Blog.(w)

Macroeconomic Data: Seasonal Pattern

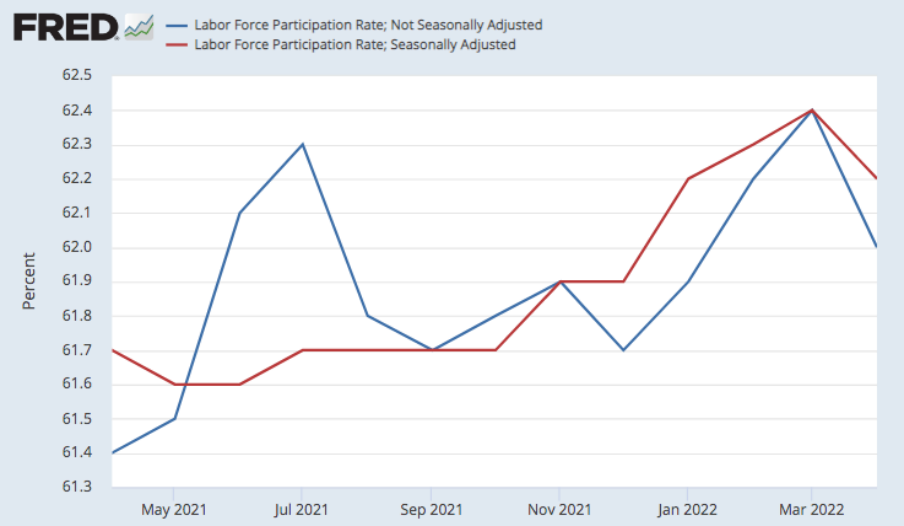


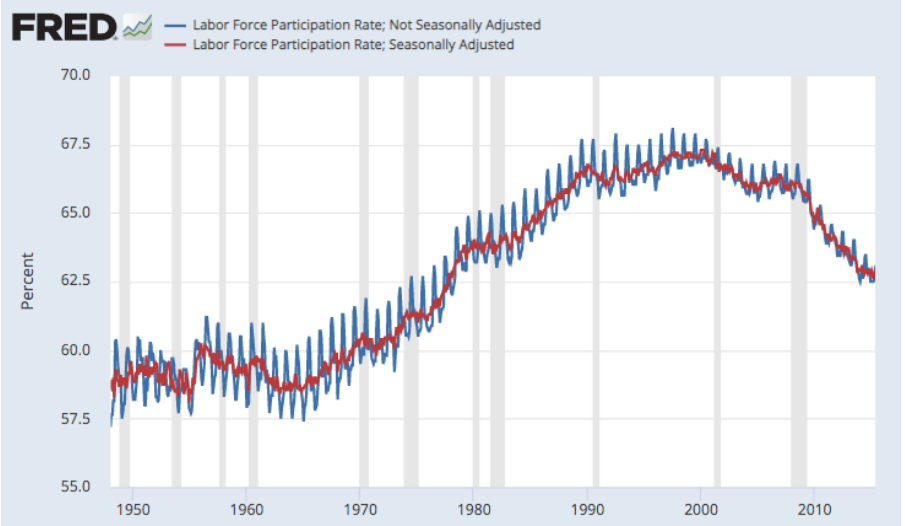


Left graph: the repeating up-and-down monthly pattern of U.S. imports from China contrasts with the comparatively steadier pattern of U.S. imports from Canada: Many Chinese goods arrive at U.S. ports and shipping centers in October, while far fewer do in February and March; Canadian goods, in comparison, arrive in fairly similar numbers throughout the year. The timing of the imports is just ahead of the busiest retail season of the year, the Christmas holiday; that suggests these are consumer goods likely to be purchased as gifts. Perhaps Santa prefers to shop in China rather than Canada. (w)

Right graph: shows the quarterly dollar prices of a pound of Thompson seedless grapes (green) and a dry pint of strawberries (red). When grapes are harvested at the end of the summer (the third quarter) and strawberries are picked in the spring (the second quarter), the abundant supply pushes down their prices to their annual lows. Notice how strawberry prices remain low—or even fall farther—during the third quarter of the year. (w)

Macroeconomic Data: Seasonal Adjustment





Left graph: the two series have the same label, yet they tell very different stories: The red line bounces between a few values, and the blue line shows a large increase last summer and then a decrease this winter. The difference is that the blue line reflects raw data, while the red line has been adjusted for seasonal regularities.
Right graph: expanding the sample period reveals the obvious seasonal variations in the path of the blue line, and the graph below shows this. Note, however, that these seasonal variations are not as strong as they used to be, presumably because the economy has become less sensitive to weather conditions.

`https://fredblog.stlouisfed.org/2015/06/dont-be-deceived-by-seasonality/`

Seasonality: Food prices (w) E-commerce (w) Trade imports (w) Interest rates (w) Labor markets (w)

Economic Theory: Assumptions and Models

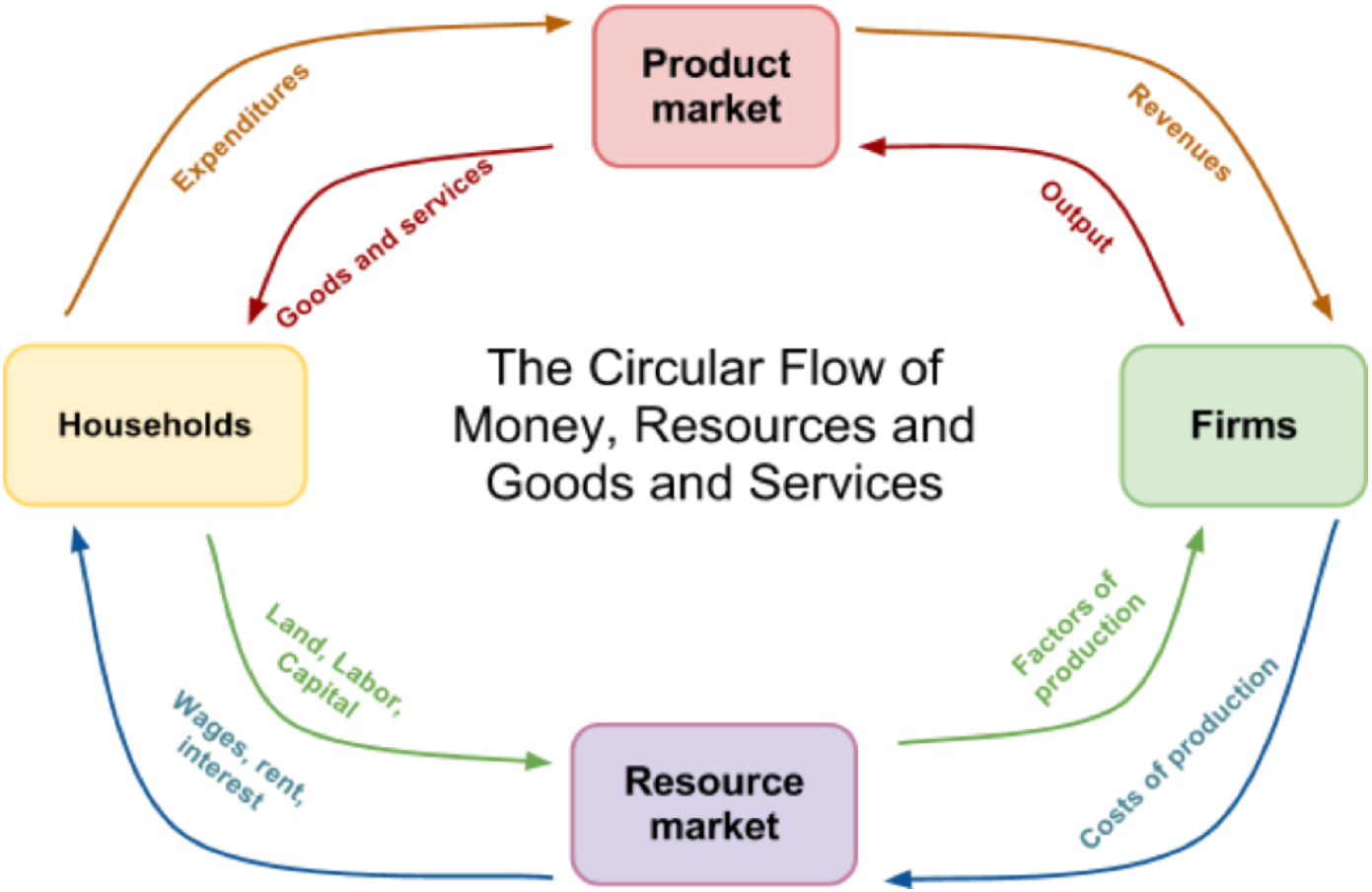
Economic theory is a systematic collection of the ideas and principles that aim to describe how economies work.

- Economic theory starts with its postulate: a statement assumed to be true without proof. It serves to explain undefined terms, and to serve as a starting point for proving other statements. Postulates are not facts.
- Postulate of Economics: Rationality or Self-Interest or Economic Man.
- Assumption is a statement that is assumed to be true and from which a conclusion can be drawn. Economists often make simplified and unrealistic assumptions for constructing a model.
- Economists use models to simplify reality in order to improve our understanding of the world and help us make predictions and decisions. Models can display in various forms, mostly in mathematical equations or geometric graphs.

"Microfoundations are an effort to understand macroeconomic phenomena in terms of economic agents' behaviors and their interactions. Research in microfoundations explores the link between macroeconomic and microeconomic principles in order to explore the aggregate relationships in macroeconomic models."

https://en.wikipedia.org/wiki/Microfoundations

Example: The Economy in Diagram



To help us visualize the complex economic system, economists simply it in a circular-flow diagram, which includes two economic agents and two different markets. Firms and households exchange their goods and services in the product market and the factor market. To facilitate all these transactions, money is the medium of exchange and unit of account.

Example: Production Possibilities Frontier (w)

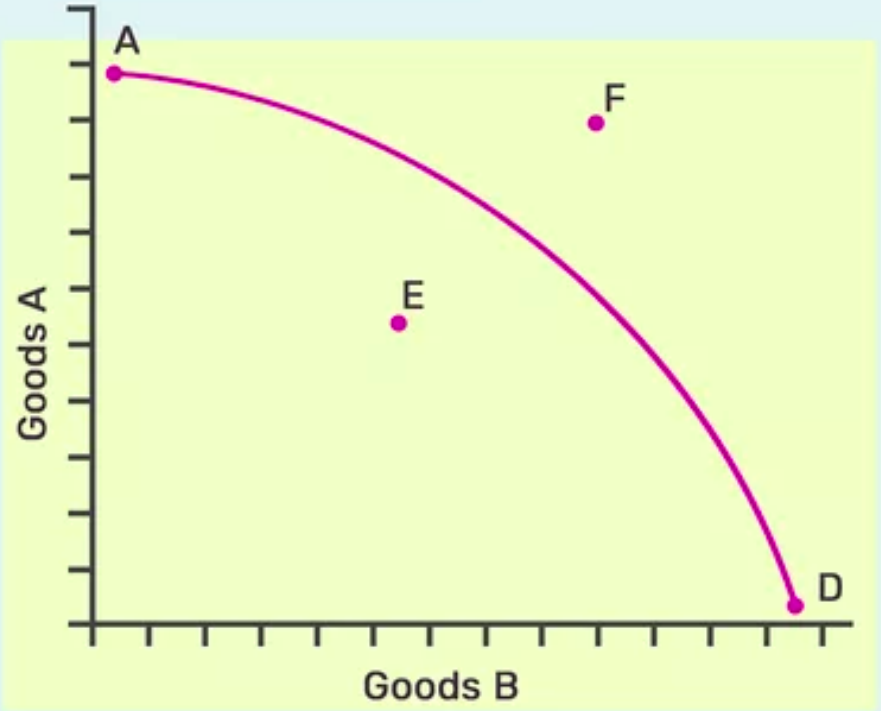
- The points show how much of each good will be produced when resources shift, thus impacting more production of one good and less of the other.
- It doesn't indicate how much of each good should be produced, but the production sacrifice needed to make more of the other good.
- It demonstrates the concept of opportunity cost.

E: All resources are not being used.

F: Any point outside the PPF curve is impossible; more of both goods cannot be produced with current resources.

A: More of goods A are being produced and none of goods B are being produced.

D: None of goods A are being produced and more of goods B are being produced.

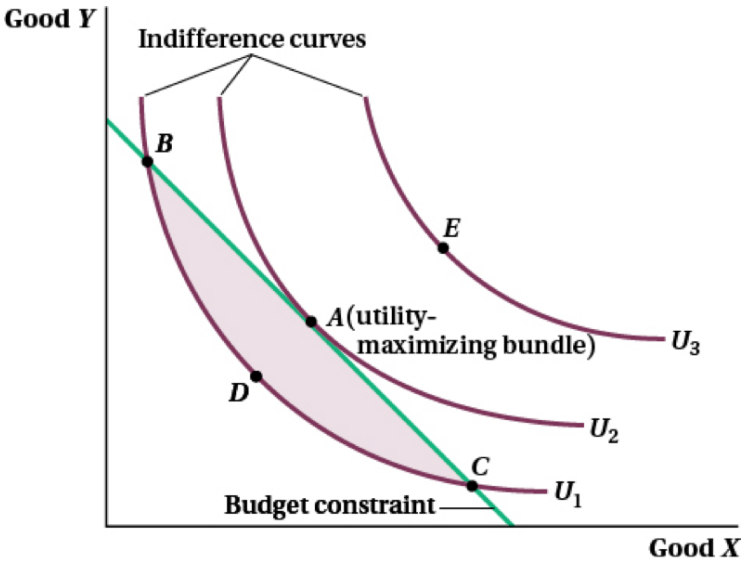


the balance

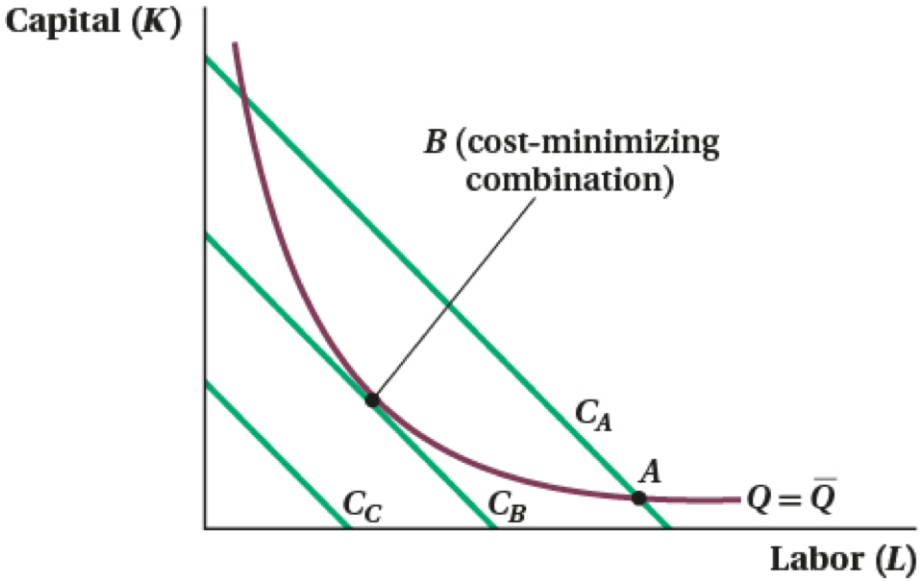
A production possibilities frontier (PPF) depicts the maximum output of two goods using a given amount of input, which consists of any combination of production factors such as natural resources, human and social capitals. The PPF is derived from the opportunity cost in production. It can illustrate the concepts of economic efficiency and growth.

Example: Agent Optimization Models

Consumer: Utility Maximization



Producer: Cost Minimization

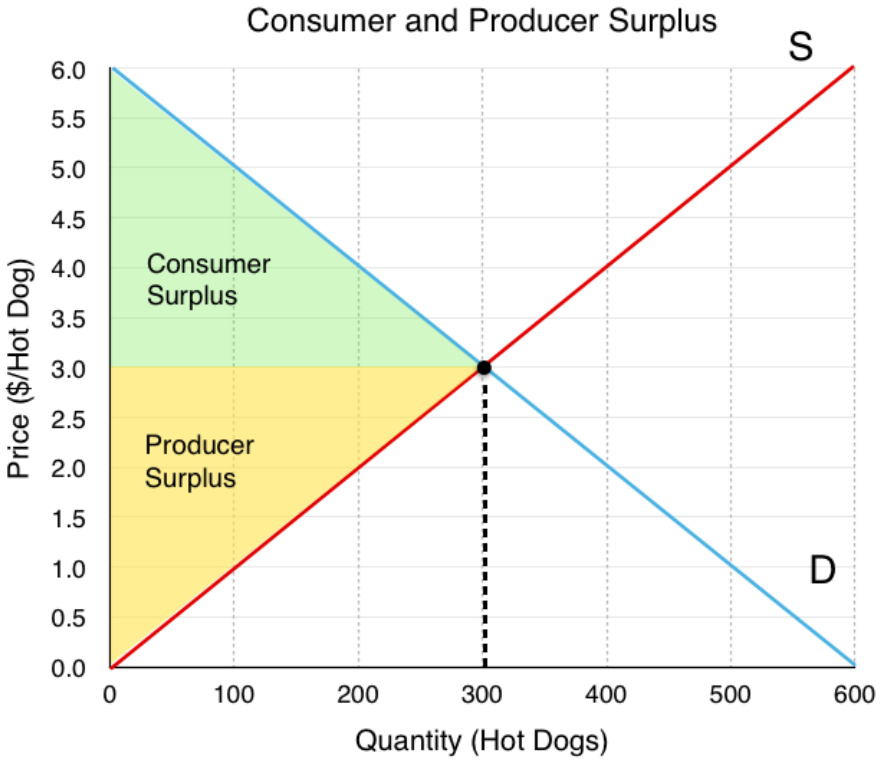


During recent decades, macroeconomists have attempted to combine microeconomic models of individual behaviour to derive the relationships between macroeconomic variables. Presently, many macroeconomic models, representing different theories, are derived by aggregating microeconomic models, allowing economists to test them with both macroeconomic and microeconomic data (Wikipedia - Microfoundations).

`https://en.wikipedia.org/wiki/Microfoundations`

Graphs: Goolsbee, Levitt & Syverson (2020) Microeconomics, 3e, Worth

Example: Market Equilibrium Model



- Market Equilibrium $E^*(P, Q)$
  $D : Q_D = a - bP$
  $S : Q_S = c + dP$
  $Q_D^* = Q^*(P^*) = Q_S^*$
- Market welfare measures the net benefits from mutual exchange (consumer and producer surpluses).
- Consumer surplus (CS): reservation value minus price.
- Producer surplus (PS): price minus reservation cost.

The market equilibrium model is the aggregation of individual demand and supply decisions made by all participating consumers and producers. It can explain the determination of price-quantity in combination and predict changes in market conditions as a result of exgoenous demand or/and supply factors. Market equilibrium is a series of events.
https://pressbooks.bccampus.ca/uvicecon103/chapter/3-6-equilibrium-and-market-surplus/

Economic Analysis: Positive v.s. Normative

Positive Economics

Seeks to understand behavior without making judgments about outcomes

Does a currency devaluation fuel inflation?

Are oil prices contributing to a GDP slowdown?

Disposable income has declined by 15% over the past four years.

When disposable incomes fall the demand for own-label supermarket foods rises

Raising tax on beer will have a negative effect on the profits of brewers.

Higher interest rates will dampen house prices.

Normative Economics

Analyzes outcomes of economic behavior, evaluates them as good or bad, and sometimes prescribes a course of action

Higher education should be free.

Should alternative fuels be subsidized?

We must try to boost disposable income.

Basic healthcare to all citizens should be free.

Unemployment is more harmful than inflation.

The minimum wage should be raised by 20%.

Market mechanisms should be allowed to work freely in order to make sure resources are best allocated.

Alcohol consumption should be controlled by enforcing minimum prices for alcoholic beverages sold in supermarkets.

Positive statements: descriptive and explanatory (what, when, where, how, and why)

Normative statements: subjective and prescriptive (involve moral and value judgement)

As I see it, progress in understanding the working of the economic system will come from an interplay between theory and empirical work. The theory suggests what empirical work might be fruitful, the subsequent empirical work suggests what modification in the theory or rethinking is needed, which in turn leads to new empirical work. If rightly done, scientific research is a never-ending process, but one that leads to greater understanding at each stage.

Source: Ronald Coase (2006) The Conduct of Economics. (w)

I don't only think economics will change, I think it ought to change....We need empirical work which actually changes the way we look at the problem....What is wrong is the failure to look at the system as the object of study....We will never, when we're dealing with the economic system, deal with an easy-to-analyze set of problems....The key to the development of a sensible analysis is the comparison between the additional production resulting from the rearrangement of activities and the cost of the transactions needed to bring the rearrangement about....If you can get extra production by rearranging activities, you will do so if the costs of transactions are less than the value of what is gained....Contracts are, in effect, the neurons of the economic system.

Source: Ronald Coase (2006) Why Economics Will Change. (w)

Macroeconomics and meteorology are similar in certain ways. First, both fields deal with highly complex general equilibrium systems. Second, both fields have trouble making long-term predictions. For this reason, considering the evolution of meteorology is helpful for understanding the potential upside of our research in macroeconomics. In the olden days, before the advent of modern science, people spent a lot of time praying to the rain gods and doing other crazy things meant to improve the weather. But as our scientific understanding of the weather has improved, people have spent a lot less time praying to the rain gods and a lot more time watching the weather channel.

Policy discussions about macroeconomics today are, unfortunately, highly influenced by ideology. Politicians, policymakers, and even some academics hold strong views about how macroeconomic policy works that are not based on evidence but rather on faith. The only reason why this sorry state of affairs persists is that our evidence regarding the consequences of different macroeconomic policies is still highly imperfect and open to serious criticism. Despite this, we are hopeful regarding the future of our field. We see that solid empirical knowledge about how the economy works at the macroeconomic level is being uncovered at an increasingly rapid rate. Over time, as we amass a better understanding of how the economy works, there will be less and less scope for belief in "rain gods" in macroeconomics and more and more reliance on convincing empirical facts.

Source: Nakamura and Steinsson (2018) Identification in Macroeconomics.

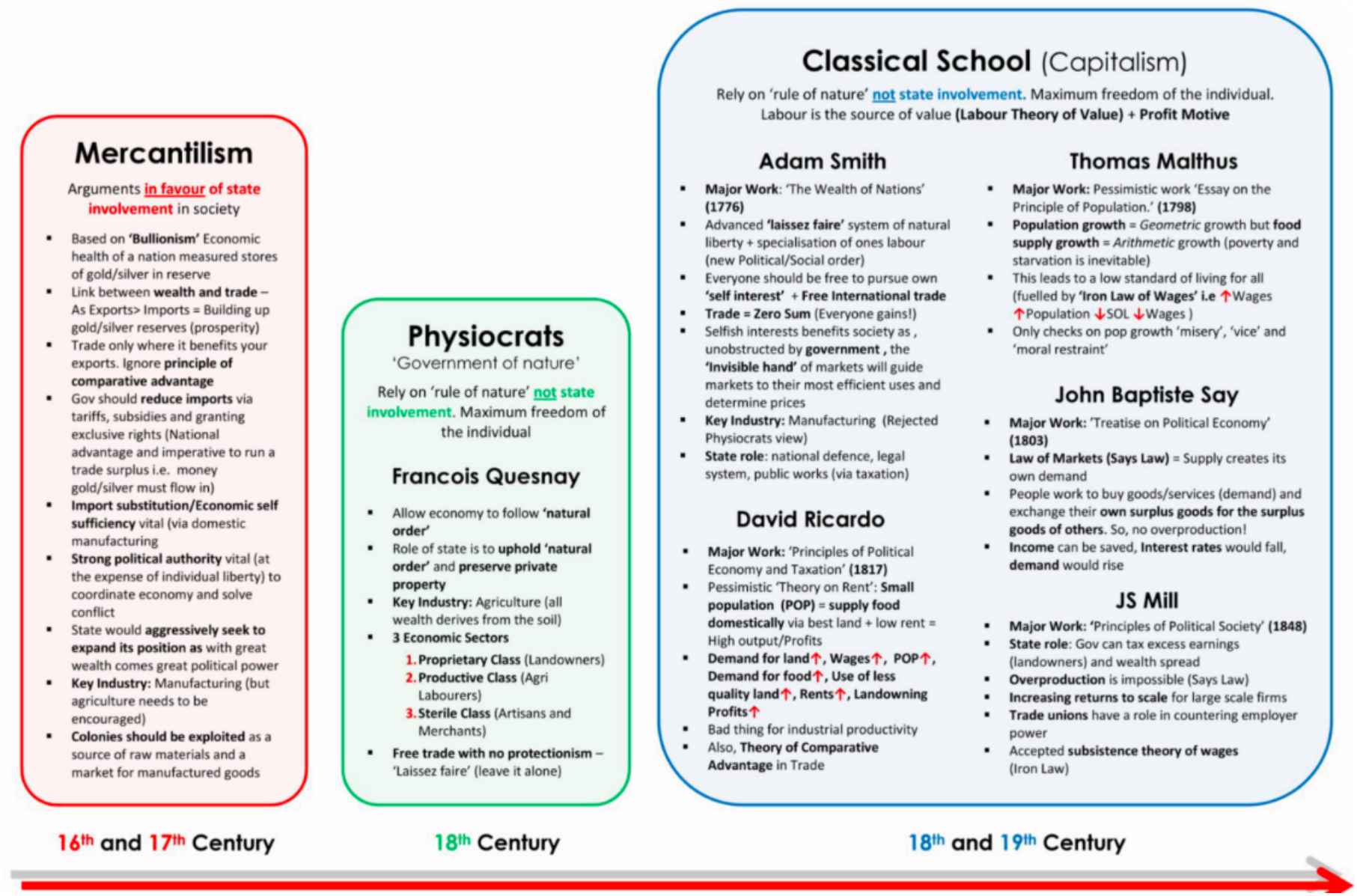
Outline

(R)Evolution of Economic Thought

1. Classical Political Economy
   - Adam Smith (1776) An Inquiry into the Nature and Causes of the Wealth of Nations
   - David Ricardo (1817) Principles of Political Economy and Taxation
   - John Stuart Mill (1848) Principles of Political Economy with some of their Applications to Social Philosophy
2. Neoclassical Economics
   - Alfred Marshall (1890) Principles of Economics
3. Keynesian Revolution
   - John Maynard Keynes (1936) The General Theory of Employment, Interest, and Money
4. Modern Economic Analysis
   - Paul Samuelson (1947) Foundations of Economic Analysis

(R)Evolution in Macroeconomics

1. Keynesian Macroeconomics and Neoclassical Synthesis (John Hicks, Alvin Hansen, Paul Samuelson, Franco Modigliani, James Tobin, Robert Solow, Lawrence Klein)
2. Monetarism (Milton Friedman, Anna Schwartz, Karl Brunner, Allen Meltzer, Edmund Phelps; David Laidler, Michael Parkin, Alan Walters)
3. New Classical Macroeconomics
   - Rational Expectation Critique (Robert Lucas, Robert Barro, Thomas Sargent, and Neil Wallace)
   - Real Business Cycle theorists (Finn Kydland and Edward Prescott)
4. New Keynesian Economics (George Akerlof, Janet Yellen, N. Gregory Mankiw, Peter Diamond, Dale Mortensen, Ben Bernanke, Mark Gertler)
5. New Growth Theory (Paul Romer, Philippe Aghion, Peter Howitt, Andrei Shleifer, Daron Acemoglu)
6. Toward an integration: Dynamic Stochastic General Equilibrium (DSGE) (Michael Woodford and Jordi Galí)



https://piigsty.com/category/economics-101/

19th Century

Socialism

Much social and political change (after Industrial Revolution and Railway Mania of mid 1800s)

Karl Marx

- **Major Work**: Communist Manifesto **(1848)**
- **Labour Theory of Value** (like Classical writers) : **Value of good** = Labour needed to produce it
- **No invisible hand**
- Capitalists exploit wealth (created by Labour)
- Capitalists want ↑**Profit** so they demand more labour, ↑ **Wages** (above subsistence)
- Capitalists don't want to pay ↑**Wages** (hits profitability)
- Replace workers with technology, new methods of production (less labour intensive) = Unemployment
- In the drive for ↑**Profit, Wages** eventually ↓
- But **only Labour can generate profits.** Unemployment = Reduced demand (Vicious cycle)
- Workers become 'deskilled' as mere 'cogs in a machine' for profit **(Alienated)**
- Provokes **profitable firms to merge** – centralised power in fewer and fewer capitalists
- Poverty, oppression, exploitation and enslavement ensues

Early/Mid 20h Century

Rebirth of Classical School

(Neo-Classical)

The '**Paradox of Value**': How do we judge the value of a good?

- Smith, Marx and Ricardo all believed in the **Labour Theory of Value** (it's the cost of labour that determines price of a good). If its easy to acquire or plentiful) and easy to produce, it will be cheap.
- Birth of a **new idea**: Value is instead based on **'Utility'** or consumer satisfaction
- **Marginal Utility** (of consuming additional units) determines price. High MU = High Price

(Neo Classical) Keynesianism

Lessons of 1930s Great Depression

Recessions a major problem. Says Law wrong? Unemployment can persist because wages can remain high. Interest rates can be ineffective to spur economic growth

John Maynard Keynes

- **Major Work:** The General Theory of Employment, Interest and Money **(1936)**
- **Idea:** Damage Management
- **Unemployment** is caused by **insufficient demand** for goods/services in the economy and the economy can settle with high unemployment for a long period. Afterall 'in the Long Run, we're all dead' so action needs to be short run
- **Wages aren't always flexible downwards** (can't be cut – provokes industrial/social unrest') aka 'Sticky Wages'
- **Level of investment** in economy (in recession) **insufficient.** Supply > Demand and unemployment follows
- **Fiscal Policy** of a state can prevent unemployment and economic recession
- **State plays a role (regulates the economy when needed)** raise aggregate demand itself by stimulus spending (by borrowing and investing i.e. by running budget deficits **IF** it means coming the economy healthy)
- State spending smooths out the bumps caused by market cycle **(Boom-Bust)**
- This creates **employment** (and **prevents unemployment**)

Late 20h Century

Monetarism

Monetary Policy ***not*** Fiscal Policy should be key to economic management (Keynesianism doesn't help with inflation)

Milton Freidman

- ↑**Money Supply** = ↑**Inflation** (↓**Competitiveness** of exports)...so...increasing public spending will only increase prices (not output)
- **Control Money Supply** (via interest rates, limiting loans and public spending) = **Control inflation**
- **Idea:** Supply side policies (anything that attempts to influence labour supply or supply of goods and services)
  1. Cut income tax
  2. Encourage market competition
  3. Reduce role of trade unions in the labour market
- **Minimise state role in economy** return to laissez faire (back to Smith's 'invisible hand') via privatisation of state assets and encouraging business growth
- **Price stability MOST important goal** (not full employment as in Keynesianism)

https://piigsty.com/category/economics-101/

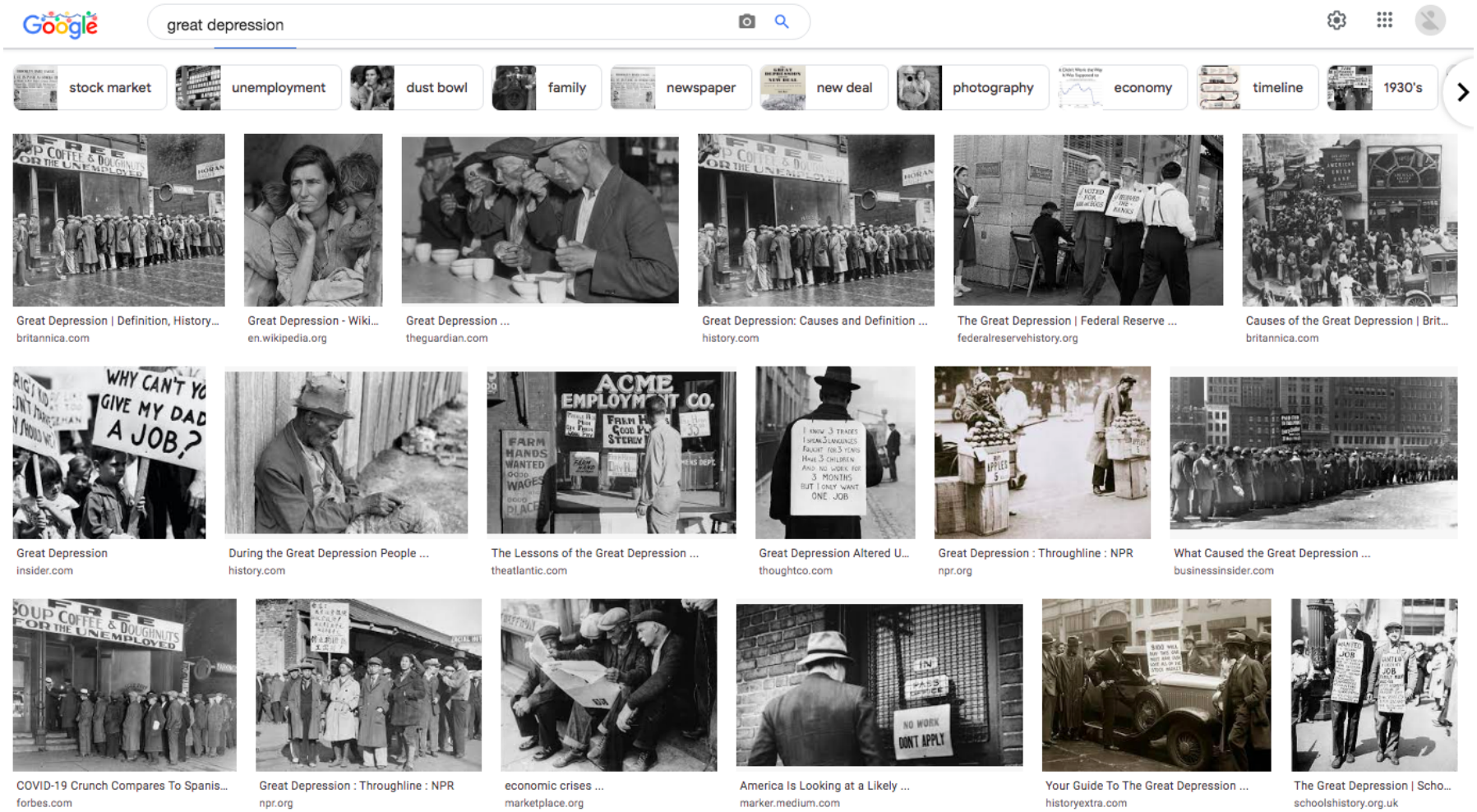
The Great Depression 1929-1941 (w)

The longest and deepest downturn in the history of the United States and the modern industrial economy lasted more than a decade, beginning in 1929 and ending during World War II in 1941.

- The Great Depression began in August 1929, when the economic expansion of the Roaring Twenties came to an end.
- A series of financial crises punctuated the contraction. These crises included a stock market crash in 1929, a series of regional banking panics in 1930 and 1931, and a series of national and international financial crises from 1931 through 1933.
- The downturn hit bottom in March 1933, when the banking system collapsed and President Roosevelt declared a national banking holiday.
- Sweeping reforms of the financial system accompanied the economic recovery, which was interrupted by a double-dip recession in 1937. Return to full output and employment occurred during the Second World War.

Source: Federal Reserve History. https://www.federalreservehistory.org/essays/great-depression

The Great Depression: Google Search Images



The Great Depression and The General Theory

- Without the Great Depression, The General Theory of Employment, Interest and Money (1936) would not have seen the light of day.
- Keynes's aim in writing this book was to elucidate the causes of the mass unemployment that affected all major economies at that time, and to suggest policy measures that could be taken to solve the problem.
- This was a time of great disarray with no remedy at hand to fix the ailing economic system. In most countries, the unemployment rate was soaring and deflationary policies had failed. There was little room in economic theory for unemployment.
- The notion of frictional unemployment had started to be evoked but it had little theoretical content. So, faced with the looming presence of the Great Depression, Keynes realised that monetary theory was blatantly wanting, and needed to be reformed.

M. De Vroey and P. Malgrange (2011) The History of Macroeconomics from Keynes's General Theory to the Present. Discussion Paper 2011-28.

Keynes and the Great Depression

The history of modern macroeconomics starts with the publication of John Maynard Keynes's General Theory of Employment, Interest, and Money in 1936. The General Theory is in fact business cycle theory that emphasizes effective demand (aggregate demand): Effective demand determines output.

- Few economists during the 1930s could provide a coherent explanation for the depth and breadth of the Great Depression.
- Keynes' General Theory delivered an intellectual framework to explain events and guide policy. Keynes emphasized what we now call aggregate demand. In particular, Keynes stressed the slow adjustment back to the natural level of output after an adverse demand shock.
- The General Theory introduced a number of ideas–the multiplier, money demand, liquidity trap, and the importance of expectation–that are fundamental to modern macroeconomics.

Source: Olivier Blanchard (2021), Ch24, Macroeconomics, 8e, Pearson.

Keynes and The General Theory

The General Theory was more than a treatise for economists. It offered clear policy recommendations, and they were in tune with the times: Waiting for the economy to recover by itself was irresponsible. In the midst of a depression, trying to balance the budget was not only stupid, it was dangerous. Active use of fiscal policy was essential to return the country to high employment. Keynes built the building blocks of modern macroeconomics:

- The relation of consumption, to income and the multiplier effects
- Liquidity preference in the demand for money that explains how monetary policy affect interest rates and aggregate demand
- The importance of expectations in affecting consumption and investment; and shifts in expectations (animal spirits) behind shifts in demand and output (boom and bust)

Source: Olivier Blanchard (2021), Ch24, Macroeconomics, 8e, Pearson.

Keynesian Macroeconomics (w)

Keynesian economics dominated economic theory and policy after WWII until the 1970s. It is a theory of total spending in the economy (aggregate demand) and its effects on output and inflation. Key tenets include

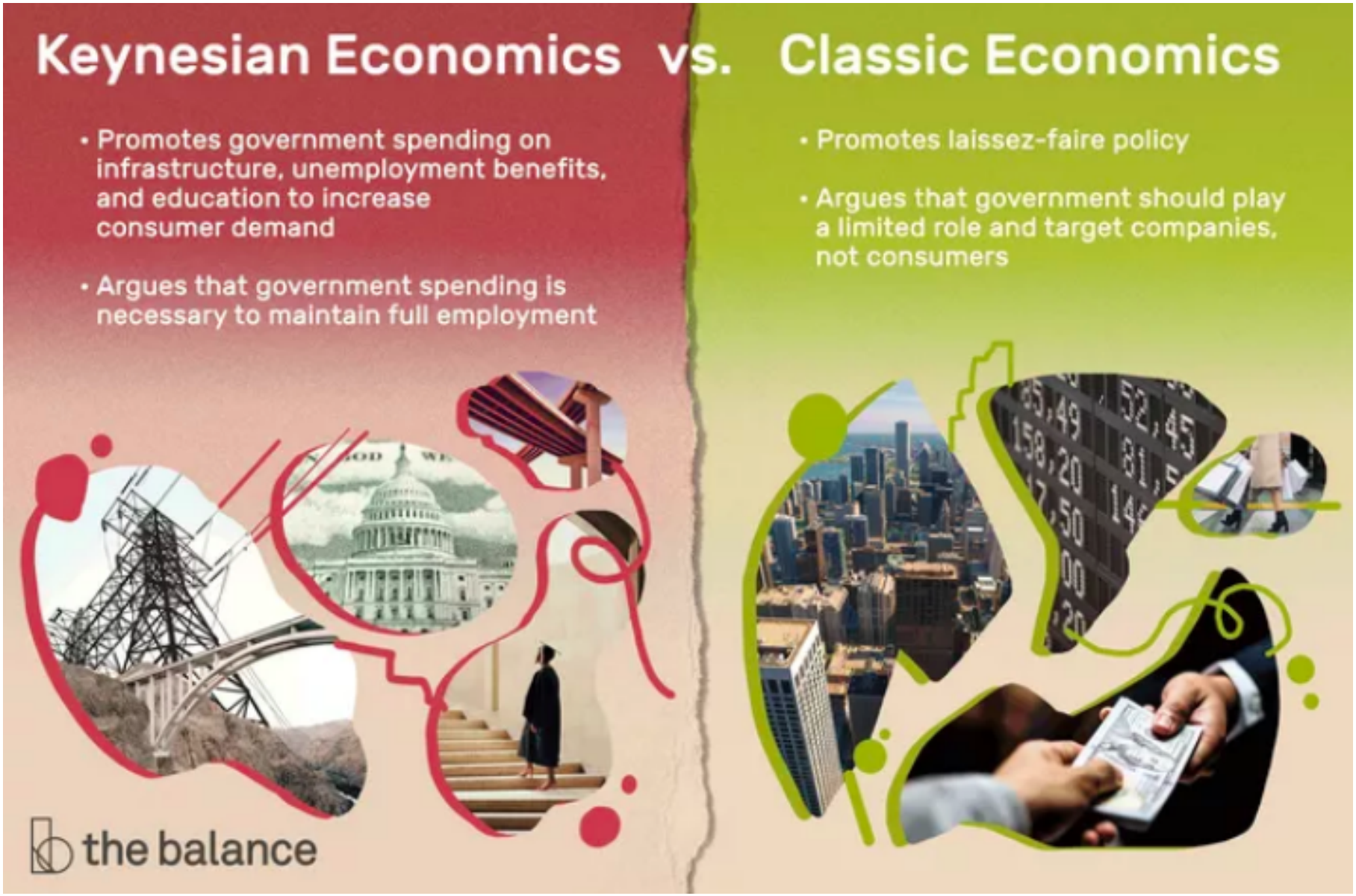
1. Aggregate demand is influenced by a host of economic decisions, both public and private, and sometimes behaves erratically.
2. Changes in aggregate demand, whether anticipated or unanticipated, have their greatest short-run effect on real output and employment, not on prices.
3. Prices, and especially wages, respond slowly to changes in supply and demand, resulting in periodic shortages and surpluses, especially of labor.
4. Many Keynesians advocate activist stabilization policy to reduce the amplitude of the business cycle.

https://www.econlib.org/library/Enc/KeynesianEconomics.html

Classical vs Keynesian Macroeconomics

- The classical approach to macroeconomics is based on the assumptions that individuals and firms act in their own best interests and that wages and prices adjust quickly to achieve equilibrium in all markets.
- Under these assumptions the invisible hand of the free-market works well, with only a limited scope for government intervention in the economy.
- The Keynesian approach to macroeconomics assumes that wages and prices do not adjust rapidly and thus the invisible hand may not work well.
- Keynesians argue that, because of slow wage and price adjustment, unemployment may remain high for a long time.
- Keynesians are usually more inclined than classicals to believe that government intervention in the economy may help improve economic performance.

Source: Abel, Bernanke, and Croushore (2020), CH1, Macroeconomics, 10e, Pearson.



https://www.thebalance.com/keynesian-economics-theory-definition-4159776

Keynesian Economics: Neoclassical Synthesis

- According to Keynes, the classics saw the price system in a free economy as efficiently guiding the mutual adjustment of supply and demand in all markets, including the labor market. Unemployment could arise only because of a market imperfection–the government intervention or the action of labor unions–and could be eliminated.
- In the 1950s, Keynesian economists achieved a measure of reconciliation with the classics. Paul Samuelson argued for a "neoclassical synthesis" in which classical economics was viewed as governing resource allocation when the economy was kept at full employment through macro policies.
- Other Keynesian economists sought to explain consumption, investment, the demand for money, and other key elements of the aggregate Keynesian model in a manner consistent with the assumption that individuals behave optimally. This was the program of "microfoundations for macroeconomics." The Neoclassical Synthesis, however, omitted the role of expectations and wage-price adjustment.

https://www.econlib.org/library/Enc/NewClassicalMacroeconomics.html

Neoclassical Synthesis

By the early 1950s, a consensus had emerged around an interpretation and extension of Keynes' ideas.

- John Hicks (1930s) and Alvin Hansen (1940s) constructed IS-LM model. Hicks won the Nobel prize in 1972.
- Franco Modigliani (1950) and Milton Friedman (1957) developed the theory of consumption. Friedman was awarded Nobel prize in 1976 and Modigliani 1985.
- James Tobin developed the theory of investment, the theory of money demand and the portfolio selection theory. Nobel laureate of 1981.
- Robert Solow (1956) developed the theory of economic growth. Nobel laureate of 1987.
- Lawrence Klein (1950s) pioneered the first econometric models for the analysis of economic fluctuations and policies. Nobel laureate of 1980.

https://www.nobelprize.org/prizes/lists/all-prizes-in-economic-sciences/

Monetarism and Monetarists (w)

- Monetarism is a macroeconomic school of thought that emphasizes (1) long-run monetary neutrality, (2) short-run monetary nonneutrality, (3) the distinction between real and nominal interest rates, and (4) the role of monetary aggregates in policy analysis.
- Two fundamental monetarist propositions are (1) that cyclical movements in nominal income are primarily attributable to movements in the stock of money, and, (2) that there is no permanent trade-off between unemployment and inflation.
- All monetarists emphasized the undesirability of combating inflation by nonmonetary means, such as wage and price controls or guidelines, because these would create market distortions. They stressed, in other words, that ongoing inflation is fundamentally monetary in nature, a viewpoint foreign to most Keynesians of the time.

https://www.econlib.org/library/Enc/Monetarism.html

Monetarists vs Keynesians

The debate between Keynesians and monetarists centered on three issues.

- Monetary versus fiscal policy: monetarists questioned the emphasis of the early Keynesians on the power of fiscal policy to stabilize output. Instead, monetarists emphasized the power of monetary policy to destabilize the economy in the absence of a money growth rule to constrain the Fed.
- The Phillips curve: many Keynesians believed that the Phillips curve offered a permanent long-run tradeoff between inflation and unemployment. Milton Friedman and Edmund Phelps argued that the tradeoff would disappear if policymakers tried to exploit it.
- The role of policy: Keynesians believed that fiscal and monetary policy could be used to fine tune macroeconomic performance to avoid fluctuations. Monetarists argued instead that economists did not know enough to stabilize output and that in any event, policymakers could not be trusted to do the right thing. Therefore, policymakers should be bound by simple rules.

Source: Olivier Blanchard (2021), Ch24, Macroeconomics, 8e, Pearson.

Rational Expectations Revolution

- The mainstream consensus of the 1960s received two challenges in the 1970s. The first challenge was empirical. Aggregate demand shocks could not account for stagflation (simultaneous increases in inflation and unemployment) which arose during the 1970s.
- The second challenge was intellectual. The new rational expectations view argued that people form expectations about the future using all available information, including economic theory and econometric models, rather than solely on the basis of the past behavior of the variables they are trying to forecast. This idea posed three challenges for Keynesian macroeconomics: Lucas critique, Philips curve puzzle, and policy control.
- Rational expectations implied that Keynesian models could not be used to evaluate potential policy measures, that Keynesian models could not explain persistent deviations of output from its natural level, and that the theory of policy needed to be redesigned via the tools of game theory.

Source: Olivier Blanchard (2021), Ch24, Macroeconomics, 8e, Pearson.

Rational Expectations: Lucas Critique (w)

Robert E. Lucas Jr. (1995 Nobel laureate) developed and applied the hypothesis of rational expectations, and thereby transformed macroeconomic analysis and deepened our understanding of economic policy.

https://www.nobelprize.org/prizes/economic-sciences/1995/summary/

- Rational expectations undermines the idea that policymakers can manipulate the economy by systematically "fooling" the public.
- Lucas showed that if expectations are rational, it simply is not possible for the government to manipulate those forecast errors in a predictable and reliable way for the very reason that the errors made by a rational forecaster are inherently unpredictable.
- Lucas's work led to what has sometimes been called the "policy ineffectiveness proposition." If people have rational expectations, policies that try to manipulate the economy by inducing people into having false expectations may introduce more "noise" into the economy but cannot, on average, improve the economy's performance.

https://www.econlib.org/library/Enc/RationalExpectations.html

New Classical Macroeconomics (w)

The new classical macroeconomics originated in the early 1970s in the work of economists centered at the Universities of Chicago and Minnesota–particularly, Robert Lucas (1995 Nobel laureate), Thomas Sargent (2011 Nobel laureate), Neil Wallace, and Edward Prescott (2004 Nobel laureate).

- The research agenda of the new classical theorists consists of an attempt to explain macroeconomic fluctuations as the outcome of shocks to competitive markets with fully flexible wages and prices. These so-called real business cycle models assume that output is always at its natural level, and interpret fluctuations as arising from movements in the natural level, triggered by technological changes.
- The problem with this view is that the nature of technological progress does not seem consistent with the types of output fluctuations typically associated with business cycles. Moreover, although in real business cycle models the money supply is irrelevant to output, there is strong evidence that changes in money affect output.

https://www.econlib.org/library/Enc/NewClassicalMacroeconomics.html

Keynesian vs New Classical Macroeconomics

	Keynesian macroeconomics	**New classical macroeconomics**
1. The overarching aim of macroeconomics	explaining unemployment	explaining the business cycle
2. Basic model	the IS-LM model	the Lucas-Rapping supply function
3. Relative role of supply and demand	emphasis on demand	emphasis on supply
4. The wage-employment relationship	stable Phillips curve allowing the policy exploitation of the inflation/ unemployment inverse relation	no possibility of a policy exploitation of the inflation/ unemployment inverse relation
5. Micro/macro relationship	under the mantle of the neoclassical synthesis; macroeconomics is concerned with its disequilibrium short-period leg	rejection of the neoclassical synthesis; its equilibrium long-period leg can provide all the explanation necessary
6. Expectations	adaptive expectations	rational expectations
7. Econometric modelling	Keynesian macroeconometric models are complex systems of equations, whose parameters are fixed by economically-estimated coefficients	Models are simplified general equilibrium models which ought to be based on 'deep structural' parameters based on the calibration method
8. Methodology	Marshallian	Walrasian
9. The nature of the business cycle and policy conclusions	the business cycle is viewed as a market failure — the policy aim is to bring the economy towards full employment through demand activation	fluctuations express agents' optimising reaction to exogenous shocks — no activation policy should be undertaken

Source: De Vroey and Malgrange (2011)

New Keynesian Economics (w)

In the 1980s, in response to the new classical critique of the 1970s, New Keynesian economics evolved with adjustments to the Keynesian tenets.

- The primary disagreement between New Classical and New Keynesian economists is over how quickly wages and prices adjust.
- New Keynesian theories rely on the stickiness of wages and prices to explain why involuntary unemployment exists and why monetary policy has such a strong influence on economic activity.
- The elements of New Keynesian Economics–such as menu costs, staggered prices, coordination failures, and efficiency wages–represent substantial deviations from the assumptions of Classical Economics, which provides the intellectual basis for the justification of laissez-faire.
- At the broadest level, new Keynesian economics suggests that recessions are departures from the normal efficient functioning of markets and caused by some economy-wide market failure. Thus, new Keynesian economics provides a rationale for government intervention.

https://www.econlib.org/library/Enc/NewKeynesianEconomics.html

Quotes by John Maynard Keynes

The long run is a misleading guide to current affairs. In the long run we are all dead.

–A Tract on Monetary Reform (1923) Ch3.

The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist.

–The General Theory of Employment, Interest and Money (1936).

The political problem of mankind is to combine three things: economic efficiency, social justice and individual liberty.

–The collected writings of Keynes (ed. 1972).

The phrase laissez-faire is not to be found in the works of Adam Smith, of Ricardo, or of Malthus. Even the idea is not present in a dogmatic form in any of these authors. Adam Smith, of course, was a Free Trader and an opponent of many eighteenth-century restrictions on trade. But his attitude towards the Navigation Acts and the usury laws shows that he was not dogmatic. Even his famous passage about 'the invisible hand' reflects the philosophy which we associate with Paley rather than the economic dogma of laissez-faire.

–The End of Laissez-faire (1926) Ch2.

Quotes by John Maynard Keynes

The study of economics does not seem to require any specialized gifts of an unusually high order. Is it not, intellectually regarded, a very easy subject compared with the higher branches of philosophy or pure science? An easy subject at which few excel! The paradox finds its explanation, perhaps, in that the master-economist must possess a rare combination of gifts. He must reach a high standard in several different directions and must combine talents not often found together. He must be mathematician, historian, statesman, philosopher - in some degree. He must understand symbols and speak in words. He must contemplate the particular in terms of the general, and touch abstract and concrete in the same flight of thought. He must study the present in the light of the past for the purposes of the future.

John M. Keynes (1924) "Alfred Marshall, 1842-1924." The Economic Journal, 34 (135): 311-372.

–It is better to be roughly right than precisely wrong.
–The markets are moved by animal spirits, and not by reason.
–Successful investing is anticipating the anticipations of others.
–The market can stay irrational longer than you can stay solvent.
–If you owe your bank a hundred pounds, you have a problem. But if you owe a million, it has.

https://libquotes.com/john-maynard-keynes

Web References

U.S. Economy: Data and Indicators

https://www.bea.gov/news/glance
https://www.bls.gov/eag/eag.us.htm
https://usafacts.org/data/topics/economy
https://www.census.gov/economic-indicators
www.cbo.gov/about/products/budget-economic-data
https://www.conference-board.org/research/us-forecast

https://fred.stlouisfed.org
https://fiscaldata.treasury.gov
https://www.federalreserve.gov/data.htm
https://stlouisfed.shinyapps.io/macro-snapshot
https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm

U.S. President Economic Indicators and Reports

https://www.govinfo.gov/app/collection/econi
https://www.govinfo.gov/app/collection/erp
https://www.cbo.gov/topics/economy

Textbook References

N. G. Mankiw (2021) Principles of Economics, 9e, Cengage

Olivier Blanchard (2021) Macroeconomics, 8e, Pearson

R. Miller (2021) Economics Today Macro View, 20e, Pearson

Kennedy and Pray (2017) Macroeconomic Essentials, 4e, MIT

Acemoglu, Laibso, and List (2022) Macroeconomics, 3e, Pearson

Goolsbee, Levitt, and Syverson (2020) Microeconomics, 3e, Worth

Bade and Parkin (2021) Foundations of Macroeconomics, 9e, Pearson

Abel, Bernanke, and Croushore (2020) Macroeconomics, 10e, Pearson

Baumol, Blinder, and Solow (2020) Economics: Principles and Policy, 14e, Cengage

F. Mishkin (2022) The Economics of Money, Banking, and Financial Markets, 13e, Pearson.

Dudley Dillard (1978) Revolutions in Economic Theory. Southern Economic Journal, 44 (4), 705-724.

M. De Vroey and P. Malgrange (2011) The History of Macroeconomics from Keynes's General Theory to the Present. Discussion Paper 28.

Emi Nakamura and Jon Steinsson (2018) Identification in Macroeconomics. Journal of Economic Perspectives, 32-3, pp. 59-86.

Web References

Econlib Encyclopedia
https://www.econlib.org/cee/
John Maynard Keynes 1883-1946 (w)
Great Depression By Gene Smiley (w)
Keynesian Economics By Alan S. Blinder (w)
Monetarism By Bennett T. McCallum (w)
Rational Expectations By Thomas J. Sargent (w)
New Classical Macroeconomics By Kevin D. Hoover (w)
New Keynesian Economics By N. Gregory Mankiw (w)

New World Encyclopedia - History of Econoimc Thought (w)
John Maynard Keynes https://www.newworldencyclopedia.org/entry/John_Maynard_Keynes
Keynesian Economics https://www.newworldencyclopedia.org/entry/Keynesian_economics