

# CEE SUMMER INSTITUTE: MACROECONOMICS AND CRYPTOCURRENCIES

James Redelsheimer

July 11th, 2022

# Instructor Bio

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James Redelsheimer has been an AP and Regular Economics teacher at Robbinsdale Armstrong High School in Plymouth, Minnesota since 2003. James is a graduate of St. Olaf and received his Master's degree at the University of St. Thomas. He received the 3M Economics Educator Excellence Award from the Minnesota Council on Economic Education, and was named Visa's Practical Money Skills Innovative Educator of the Month.

James enjoys traveling and has been a guest lecturer in the economics department at the Batumi State University in The Republic of Georgia, and has received travel grants and fellowships for study travel to learn about the economies of Japan, China, Turkey, Germany, Korea, among others, and studied economics of the environment in Costa Rica. He currently serves as an AP Economics reader, grading AP Economics exams. He enjoys teaching Economics because it relates to students' everyday lives.

# Today's Agenda

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1. Fiscal Policy and the National Debt
2. Monetary Policy
3. Cryptocurrencies and the Blockchain

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# FISCAL POLICY and THE NATIONAL DEBT



What is the difference  
between debt and deficit?

# National Debt Clock



**A deficit is**

When the government spends more than it takes in taxes, in a given year.

**Debt is**

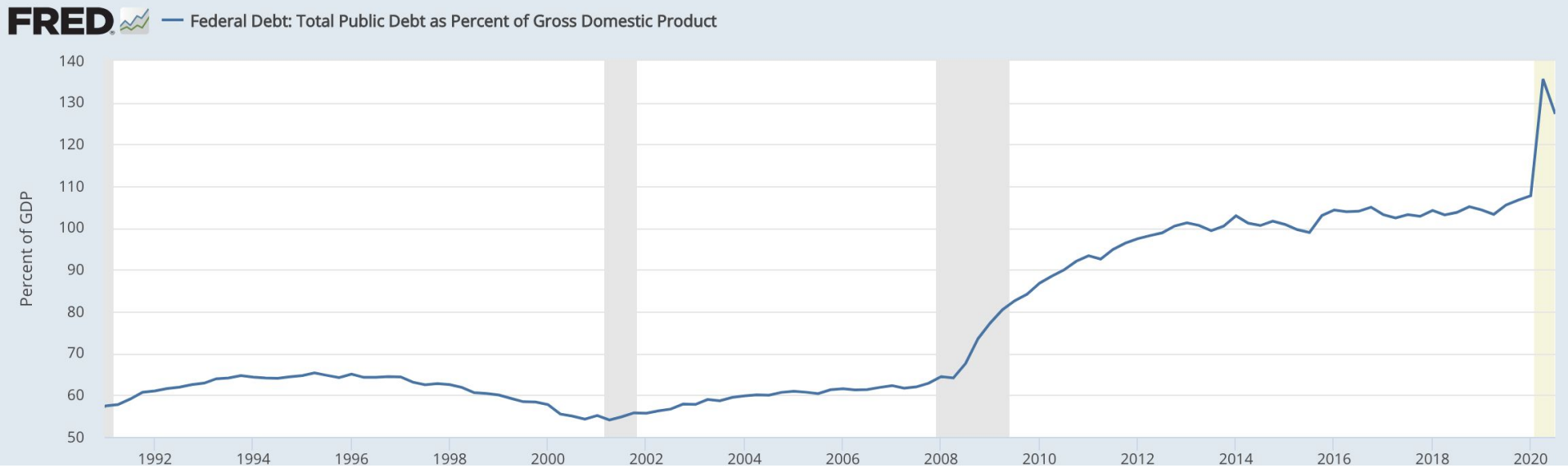
the accumulation of yearly deficits plus surpluses.

AM Money





# Current Debt to GDP Ratio: 124%



The budget deficit in 2020 was

■ \$ 3,100,000,000,000



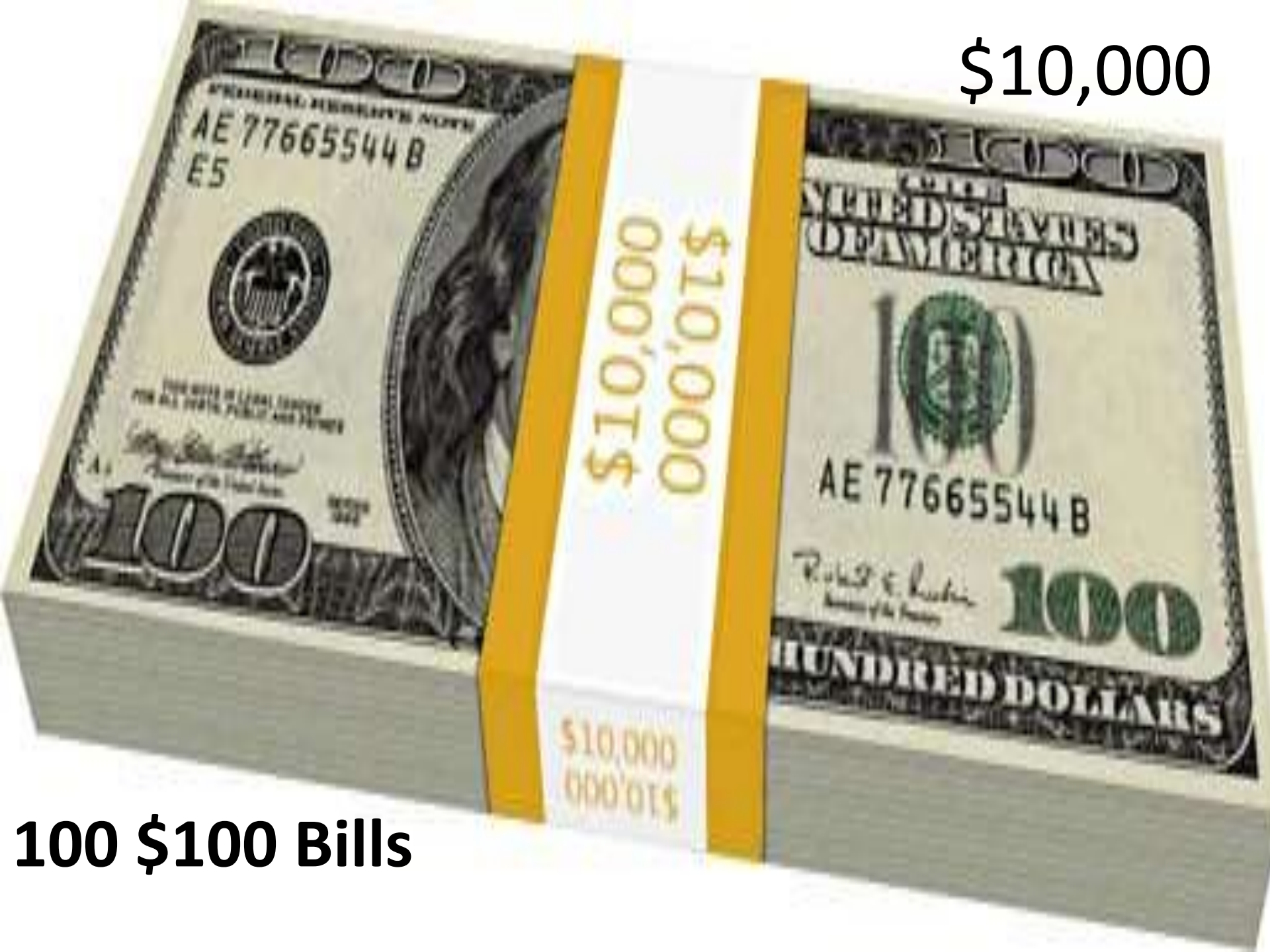
What's a trillion dollars?

# One \$ 100 dollar bill





\$10,000



\$10,000  
000'01\$

\$10,000  
000'01\$

100 \$100 Bills



Sa-weet!

One Million Dollars!!!

Believe it or not, this next little pile is \$1 million dollars (100 packets of \$10,000).

A man in a red polo shirt and dark blue pants stands to the left of a large stack of grey pallets. A blue speech bubble above him contains the text "Lemme get my Truck". The stack of pallets is composed of many individual pallets stacked on top of each other, with a wooden pallet base visible at the bottom. The scene is set against a plain white background with soft shadows cast by the man and the stack.

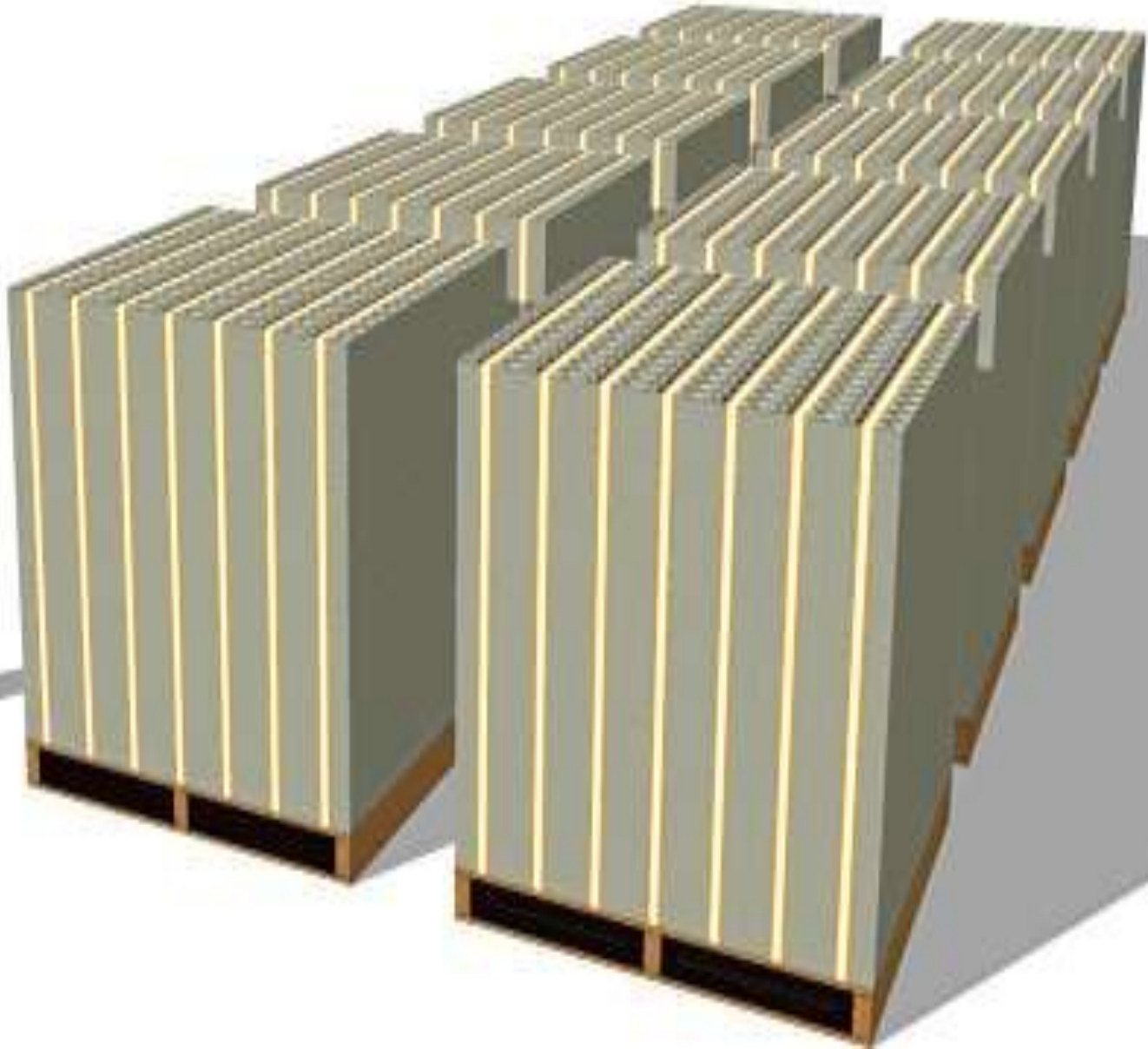
“Lemme get my  
Truck”

\$100 Million

While a measly \$1 million looked a little unimpressive, \$100 million fits neatly on a standard pallet.

Whoa,  
Dude!

Holy cow!  
And \$1 BILLION dollars...





Please have a seat

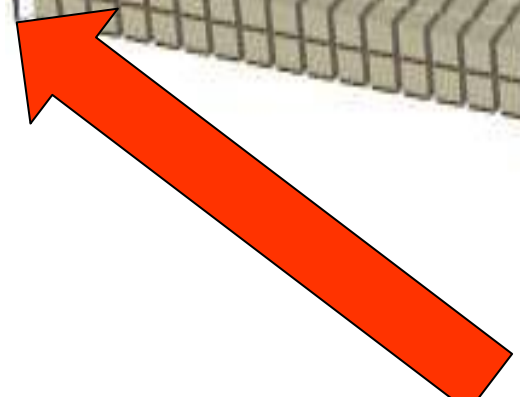
Next we'll look at ONE TRILLION dollars.

What is a trillion dollars?

- Well, it's a million million.
- It's a thousand billion.
- It's a one followed by 12 zeros.
- You ready for this?

And notice those pallets are double stacked \$100 dollar bills! So the next time you hear someone toss around the phrase “trillion dollars”... that’s what they’re talking about.

“NO  
FLIPPIN’  
Way!”



# How does the Government Stabilizes the Economy?

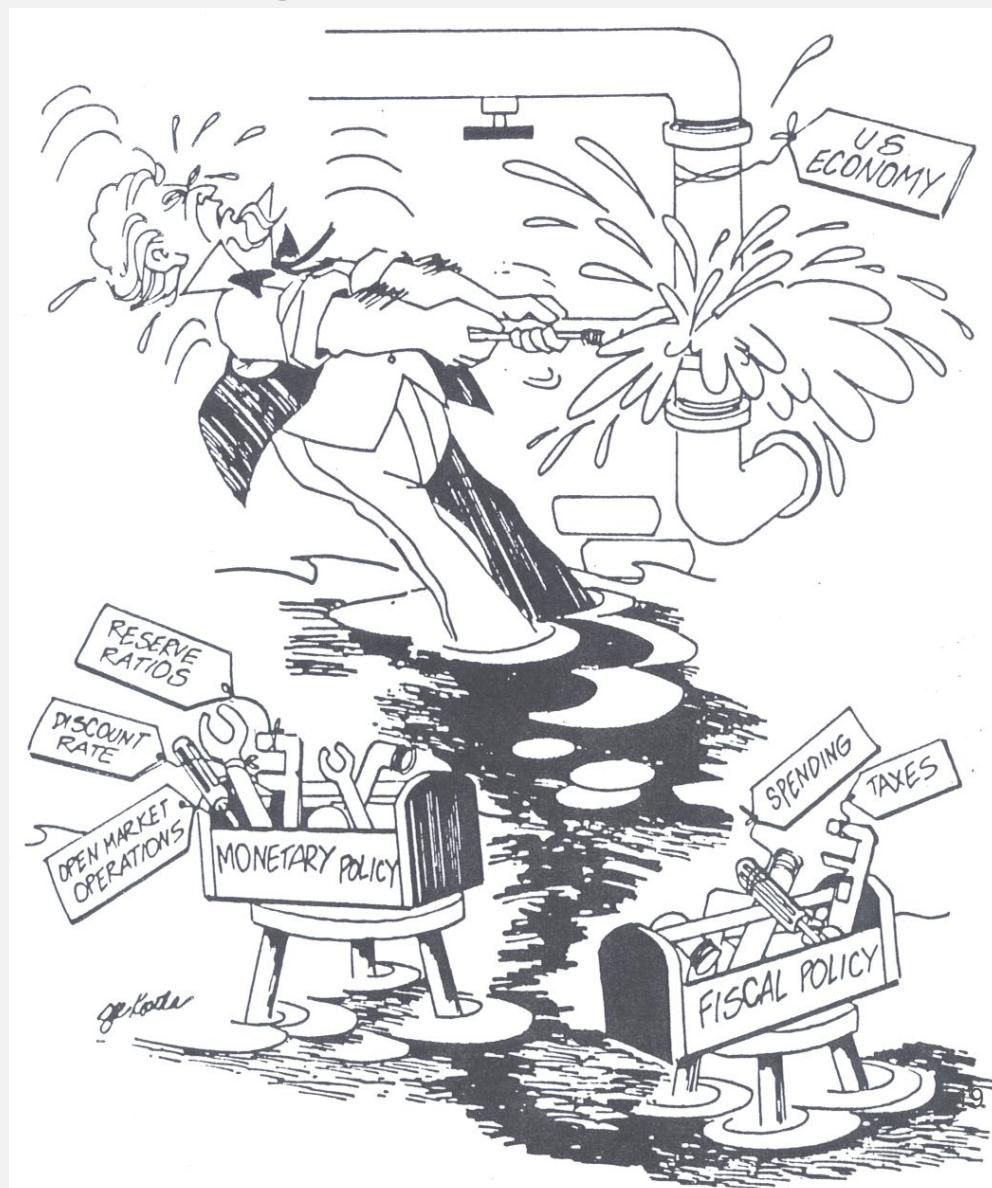
The Government has two different tool boxes it can use:

## 1. Fiscal Policy-

Actions by Congress to stabilize the economy.

OR

2. Monetary Policy-Actions by the Fed to stabilize the economy.



**For now we will focus on Fiscal Policy.**





# Fiscal Policy

Using government spending  
and taxation to influence the  
economy.

# *Expansionary Fiscal Policy*

## To Reduce Unemployment (recession)...

- Increase Government Spending
- Decrease Taxes
- Combo of the Two

**G** ↑  
**T** ↓

# *Contractionary Fiscal Policy*

To Reduce Inflation...

- Decrease Government

Spending

- Increase Taxes

- Combo of the Two

$G \downarrow$

$T \uparrow$

# Aggregate, or Total Demand:

Consumer

Investment

Government

Exports - Imports



We've learned that expansionary fiscal policy, decreasing taxes or increasing government spending, can be a powerful tool to fix a recession. But just like you, if a government's spending exceeds its income, it has to borrow the difference.

When a government's expenditures on goods, services, or transfer payments exceed their tax revenue, the government has a budget deficit. Governments borrow money to pay for budget deficits, and whenever a government borrows money, this adds to its national debt. The US National debt is now over 100% of GDP

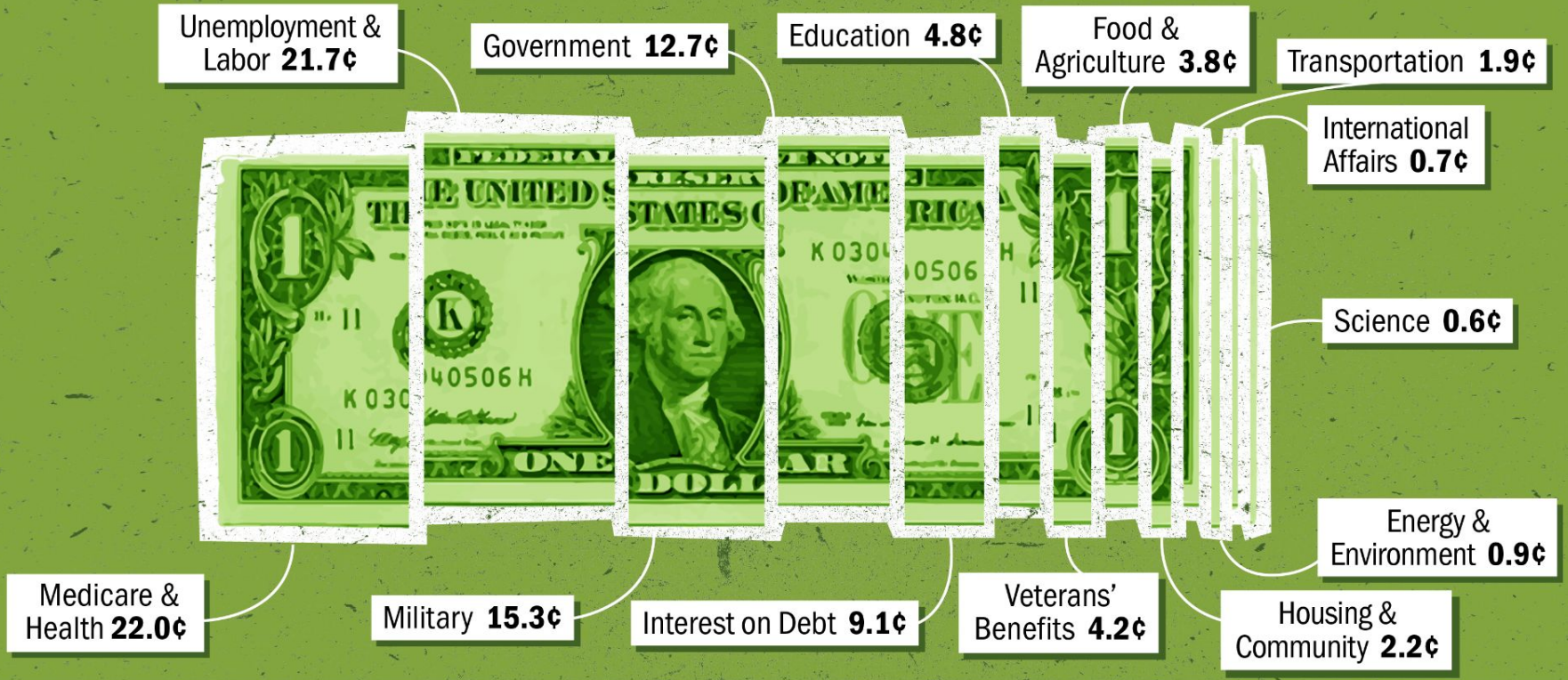


PBS

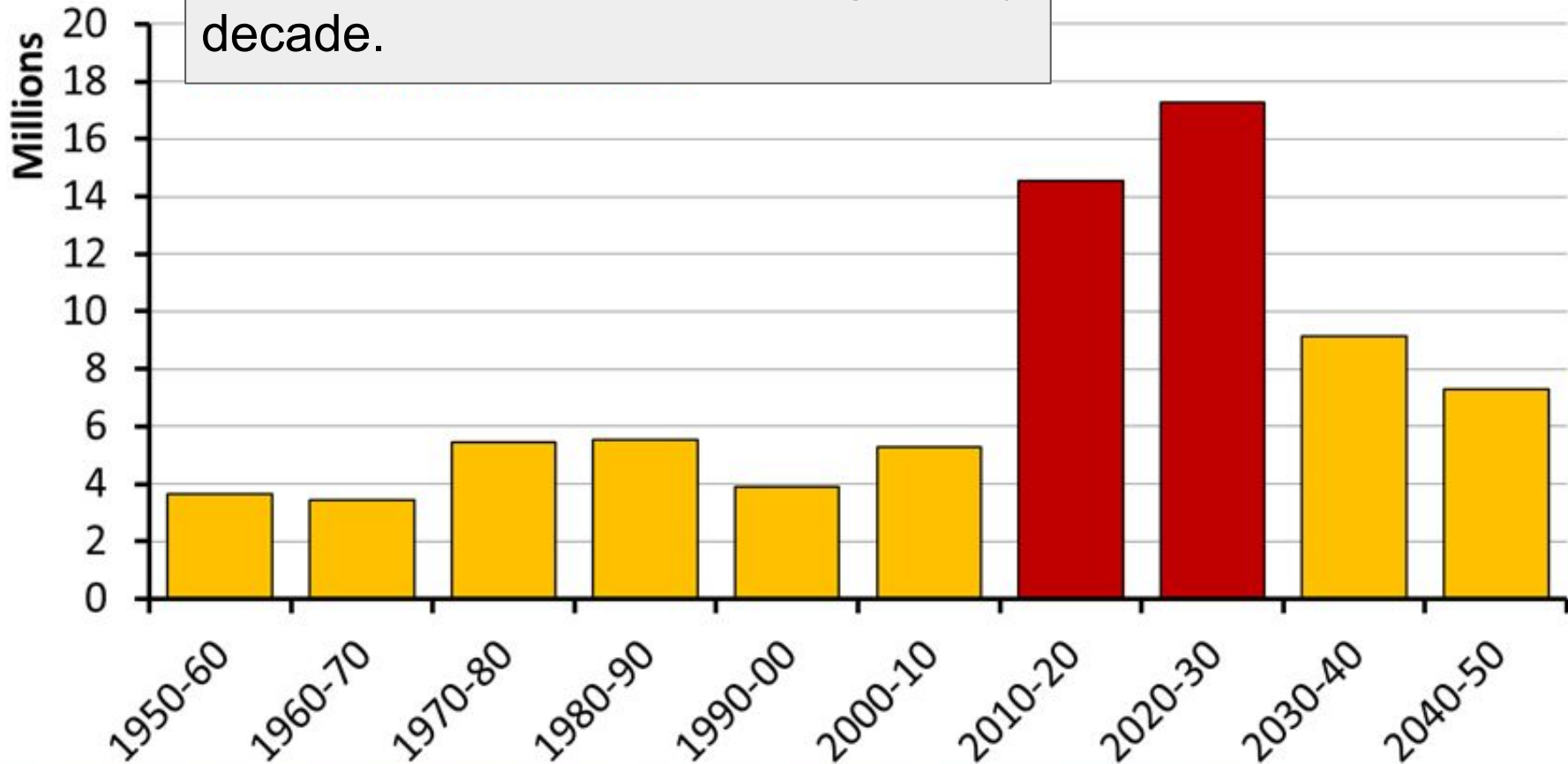
Where do my  
**TAXES** go?



# WHERE YOUR 2021 TAX DOLLAR WENT



Number of Americans turning 65, by decade.





# Top 10 Reasons Why The National Debt Matters

Jul 1, 2022



Why the National Debt Matters

ppf.org  
Share

**Our growing debt jeopardizes the safety net.**

Social Security, Medicare, Medicaid, and other programs  
serving millions of Americans depend on a sustainable fiscal path

Watch on  YouTube

The video thumbnail features a close-up of an elderly man with white hair looking down at a young child with blonde hair. The child is resting their head on the man's shoulder. A large play button is centered over the image. The background is a soft, out-of-focus grey.

# Lesson: The Fiscal Ship

## Understanding Challenges of the Federal Budget



# Charting a Course for the Federal Budget and the National Debt

# Federal Budget

The taxing and spending plan of the national government

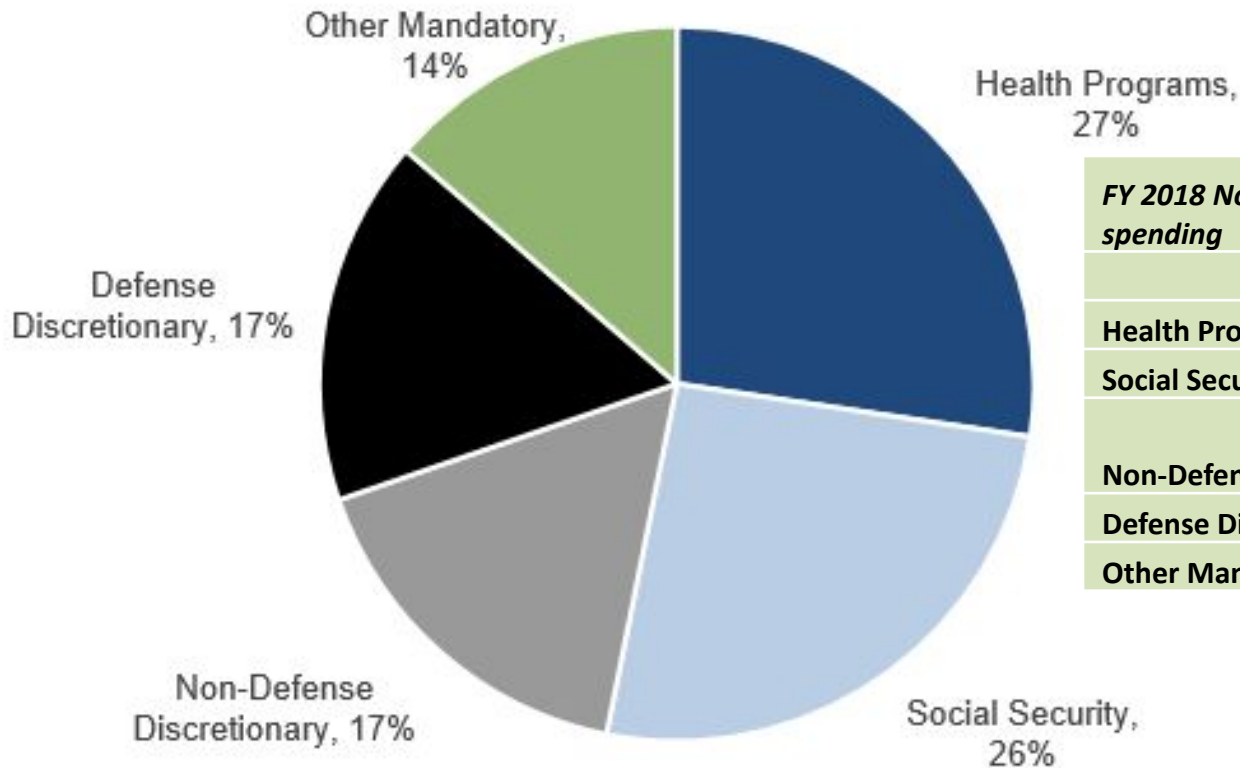
- A **budget deficit** occurs in years the government's outlays (spending) are greater than its revenues (tax receipts)
- Budget deficits increase the **National Debt** (the total unpaid borrowed funds, carried by the federal government).
- A **budget surplus** would decrease the size of the National Debt.





# Federal Budget

## FY 2018 Budget: Non-interest spending

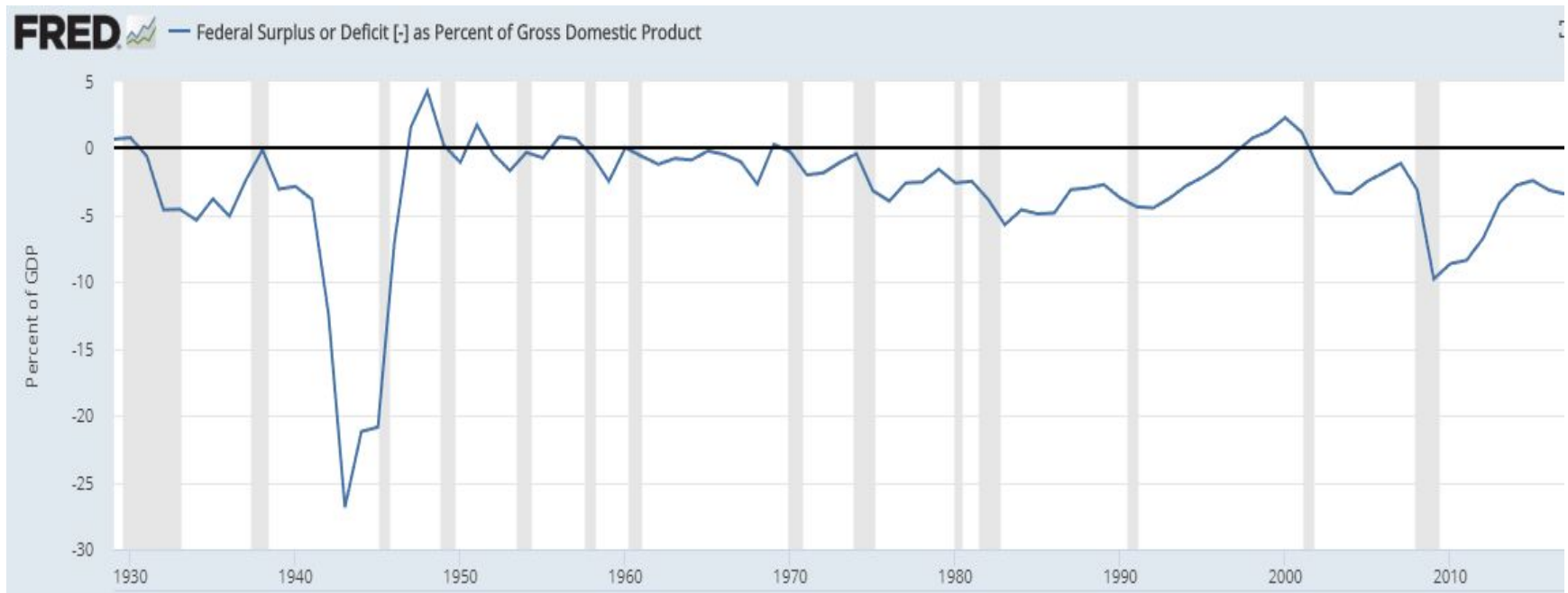


<i>FY 2018 Non-interest spending</i>		
	% of GDP	Share
Health Programs	5.2	27%
Social Security	4.9	26%
Non-Defense Discretionary	3.2	17%
Defense Discretionary	3.2	17%
Other Mandatory	2.6	14%

Source: Congressional Budget Office

Image credit: Vivien Lee (Senior Research Assistant- Hutchins Center on Fiscal and Monetary Policy, The Brookings Institution)

# The federal government has run a deficit for much of the last century.

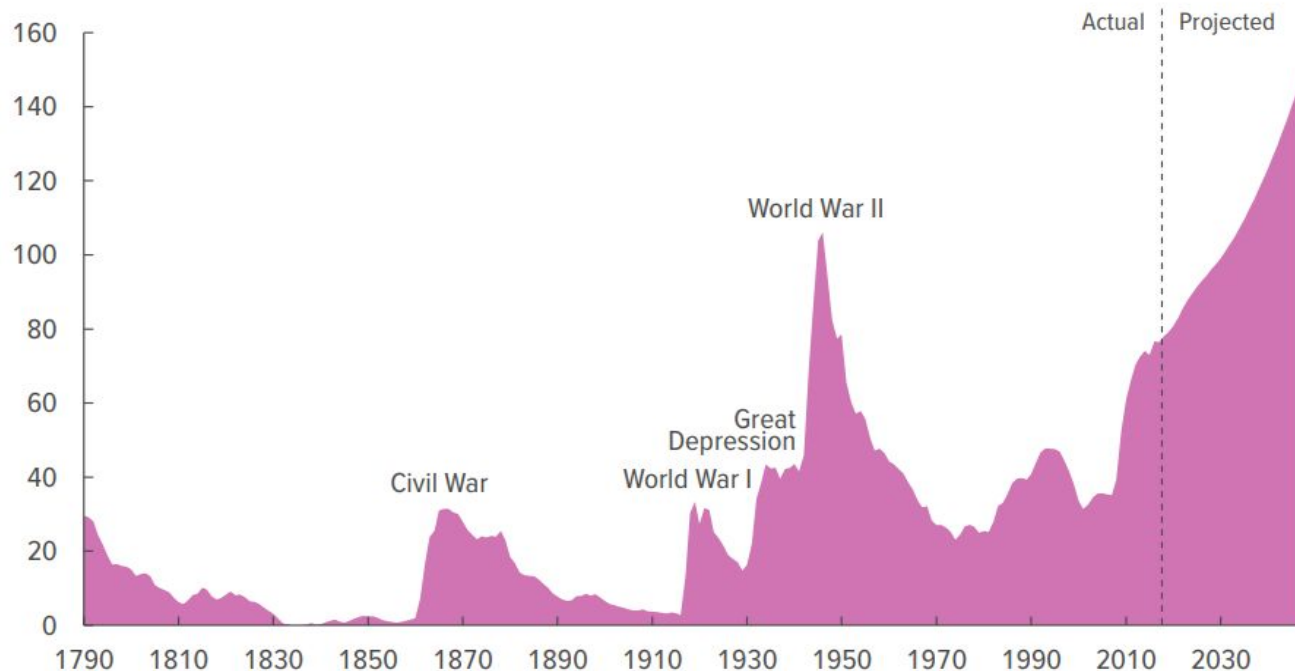


Source: FRED Economic Data, Federal Reserve Bank of St. Louis

# A yearly deficit adds to the national debt.

## Federal Debt Held by the Public

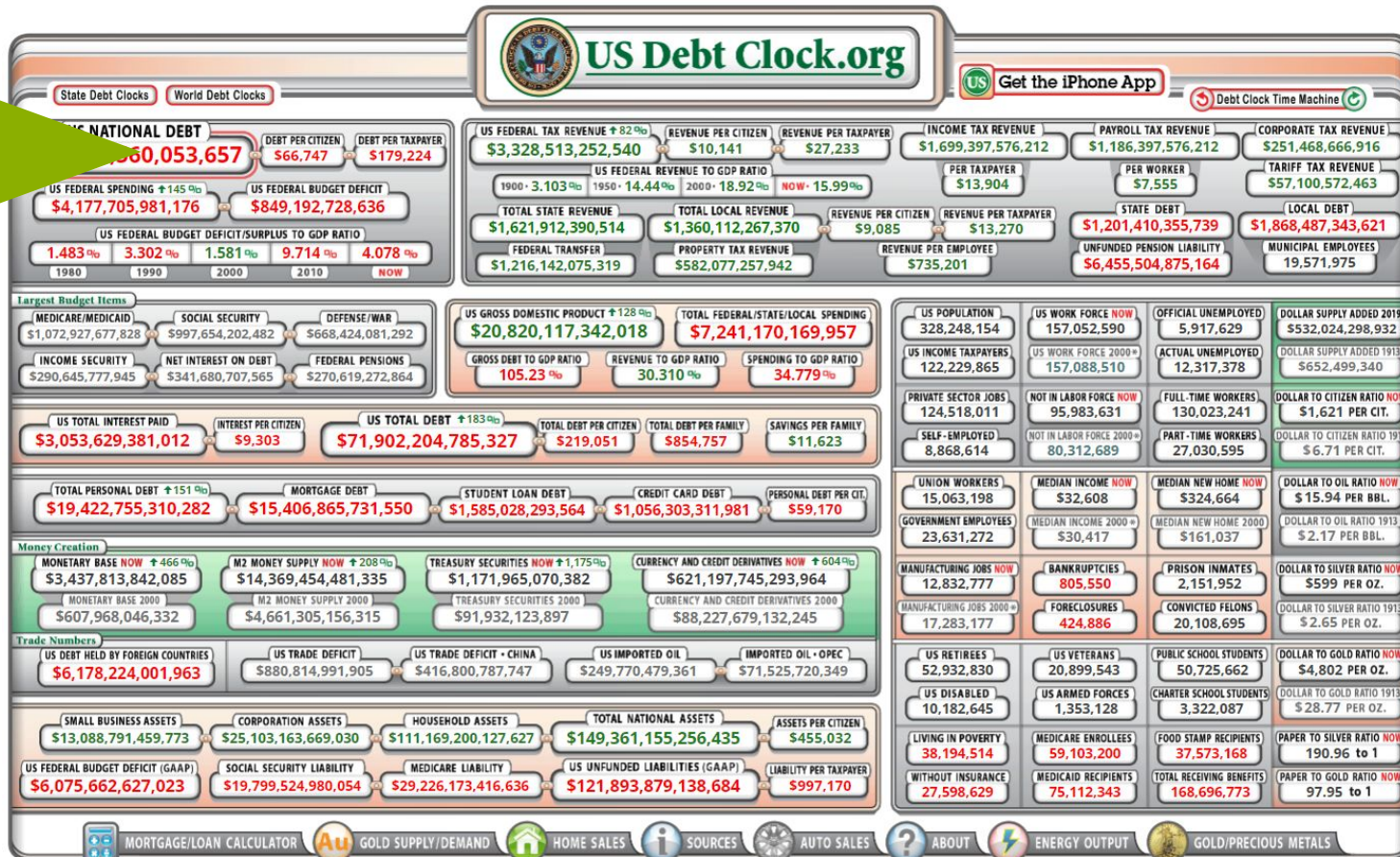
Percentage of Gross Domestic Product



High and rising federal debt would reduce national saving and income, boost the government's interest payments, limit lawmakers' ability to respond to unforeseen events, and increase the likelihood of a fiscal crisis.

Source: Congressional Budget Office

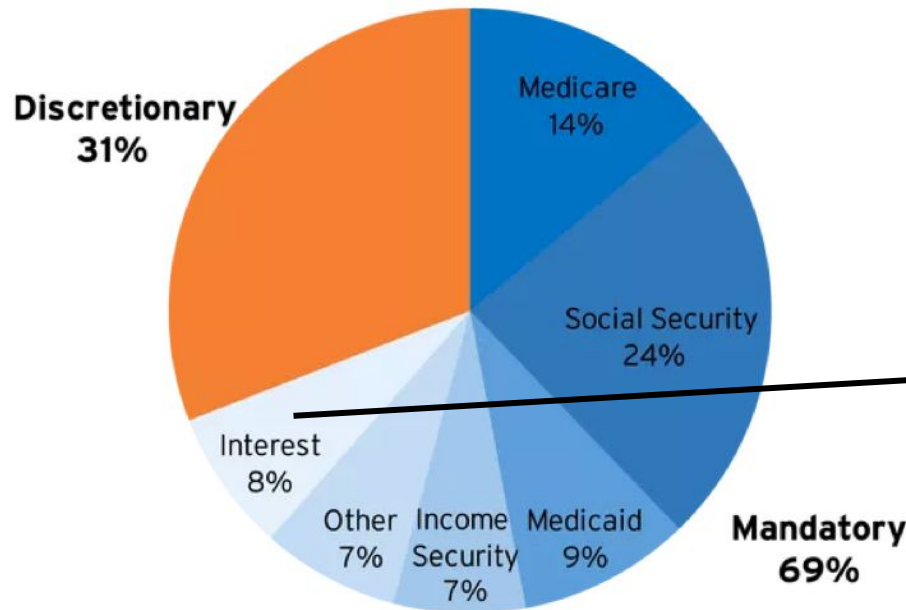
# The National Debt





# Interest on the National Debt

## COMPOSITION OF MANDATORY SPENDING (2018)

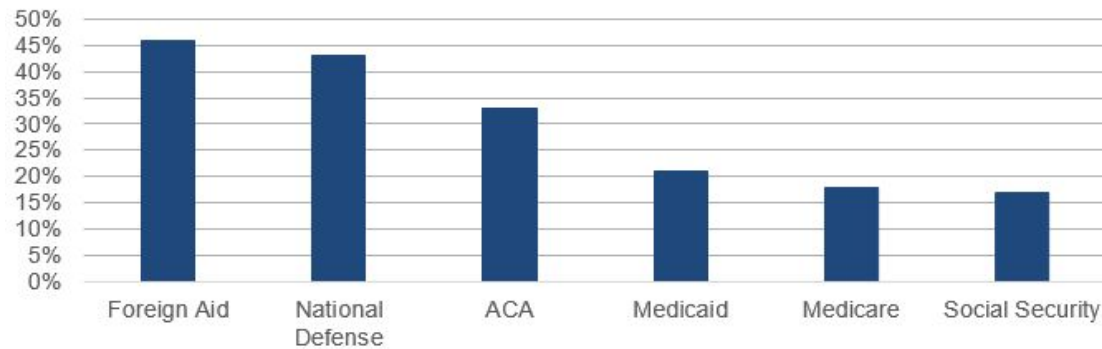


Source: Congressional Budget Office, Haver

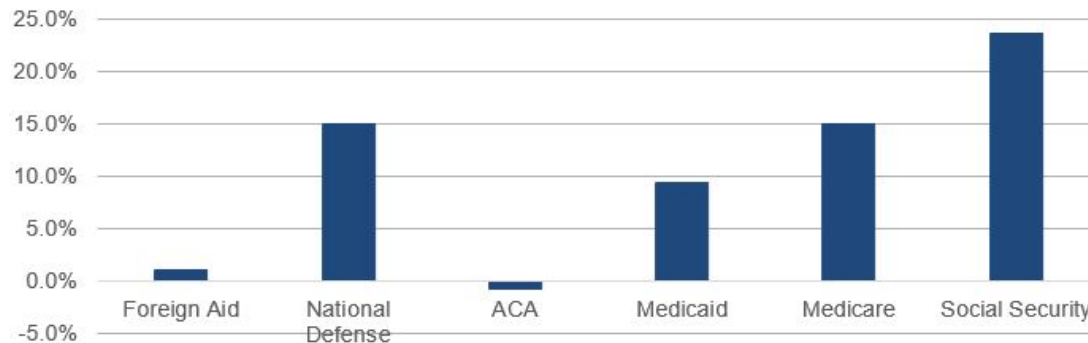
 Hutchins Center  
on Fiscal & Monetary Policy  
at BROOKINGS

# Misconceptions about the budget:

Poll: Contributes a "Great Deal" to National Debt



Reality: Actual Share of Spending



Source: Office of Management and Budget, Congressional Budget Office

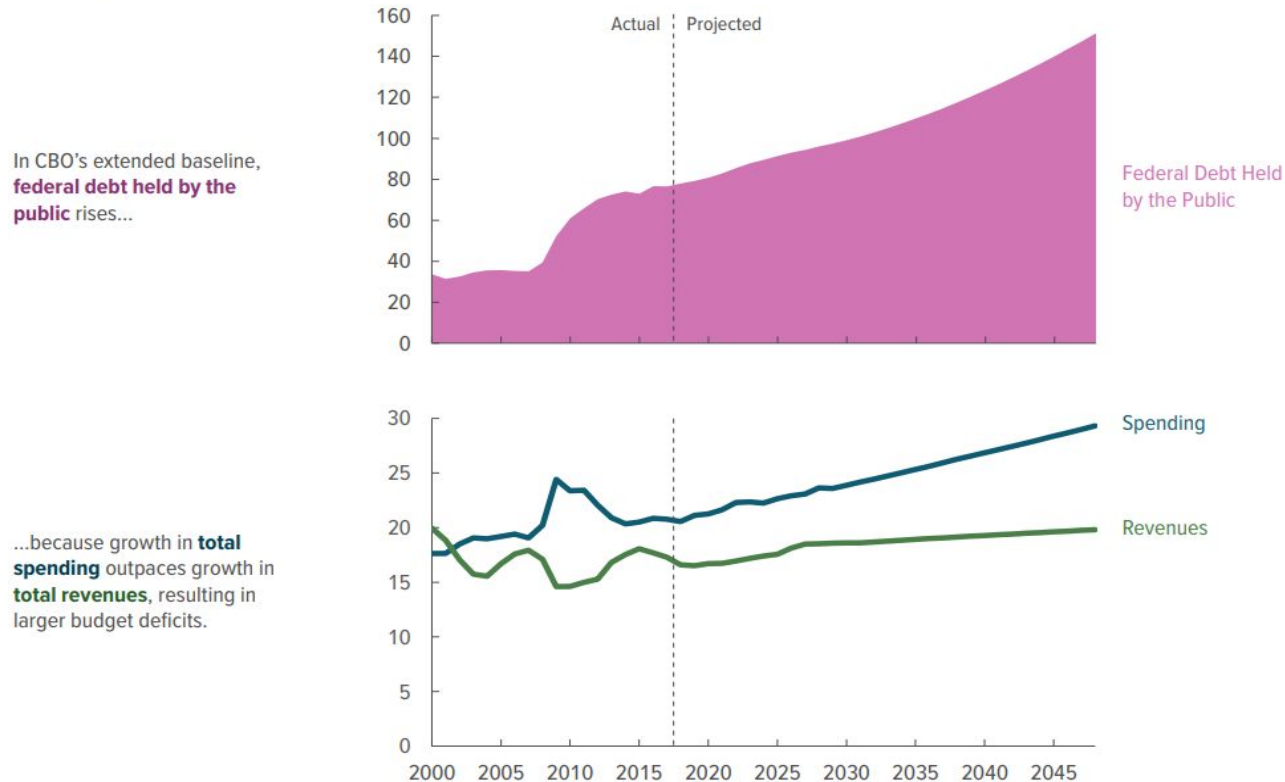
# The Long-Term Federal Budget Outlook

- The long-term federal budget outlook has worsened dramatically in recent years
- Federal debt as a % of GDP is higher than at any time since WWII
- The CBO projects that growing budget deficits will push debt well above its current high level, and in 25 years federal debt will exceed 100% of GDP and still be on an upward path

# Challenge #1: Growing Budget Deficits

## Federal Debt, Spending, and Revenues

Percentage of Gross Domestic Product



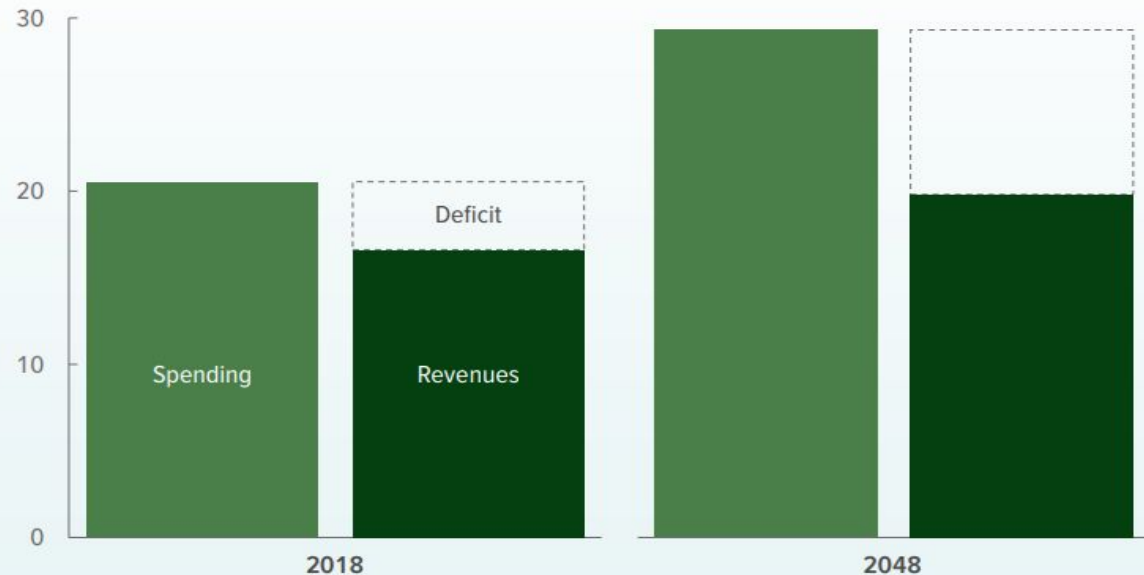
Source: Congressional Budget Office



# Larger deficits increase interest rates which decreases private investment

... as spending grows more quickly than revenues do. Driving that spending growth are interest payments on the debt, major health care programs, and Social Security.

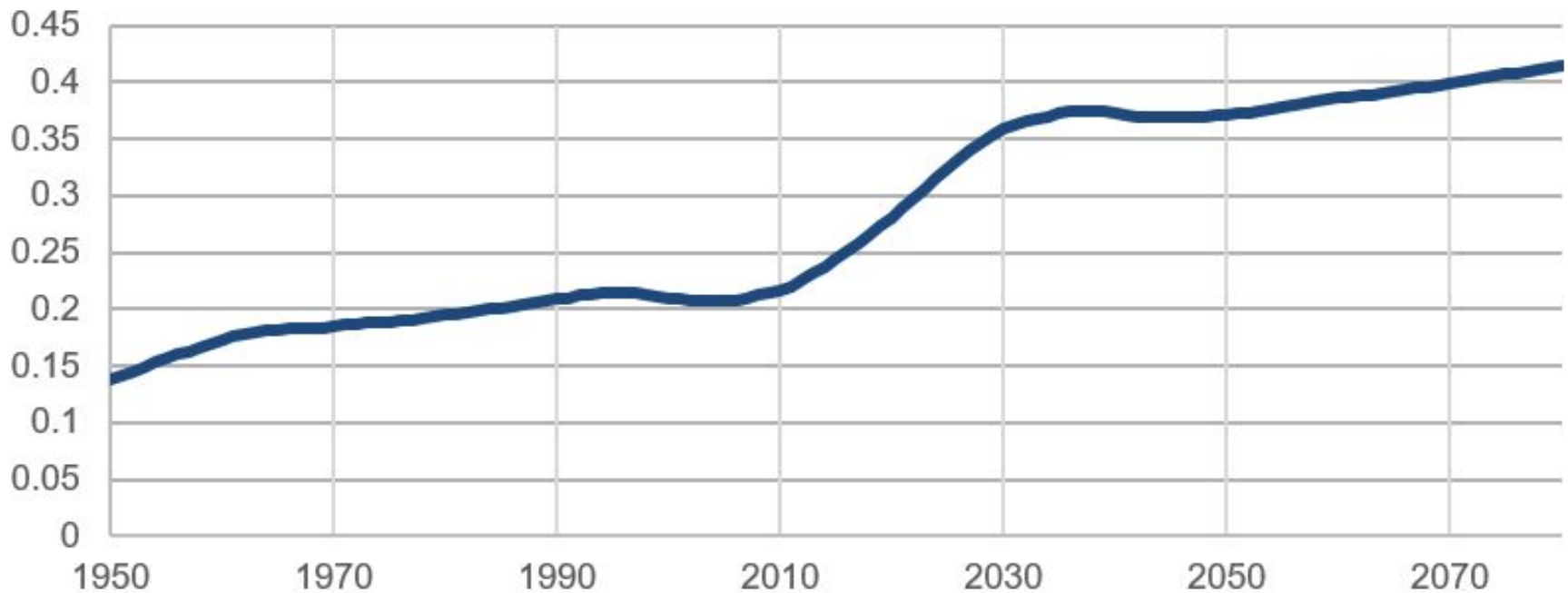
Percentage of GDP



**JUNE 2018**

# Challenge #2: Population Aging

Permanent shift in the age structure of the population  
Ratio of elderly to working-age population



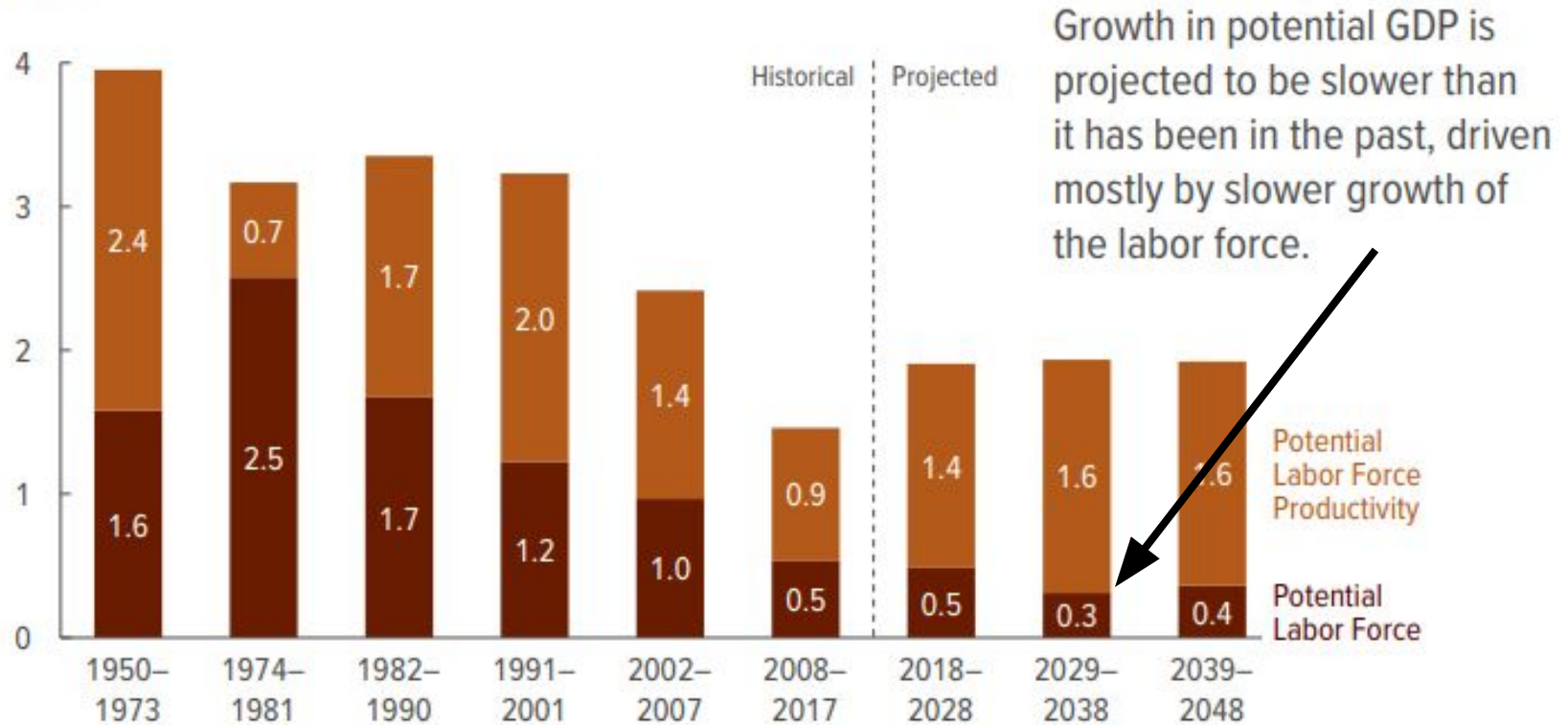
Source: Social Security Administration

Image credit: Vivien Lee (Senior Research Assistant- Hutchins Center on Fiscal and Monetary Policy, The Brookings Institution)

# Challenge #2: Population Aging

## Average Annual Growth of Real Potential GDP in CBO's Extended Baseline

Percent

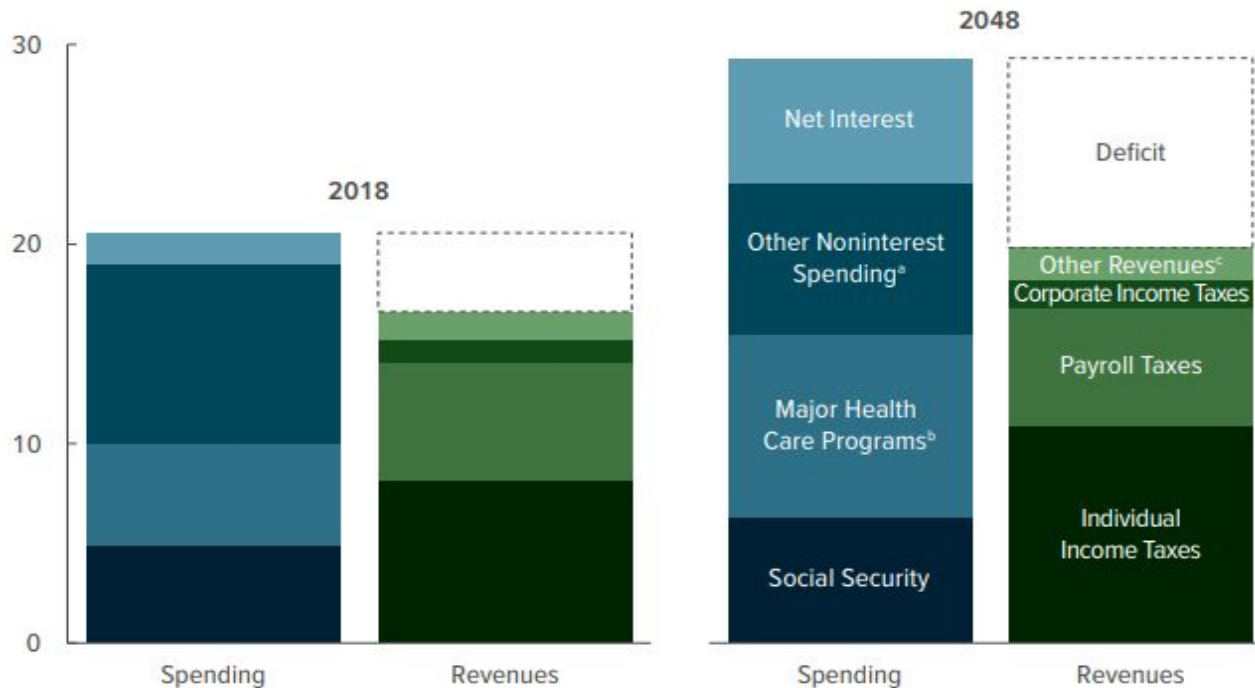


Source: Congressional Budget Office

# Challenge #3: Increased Costs for Major Health Care Programs

## The Federal Budget in CBO's Extended Baseline

Percentage of Gross Domestic Product

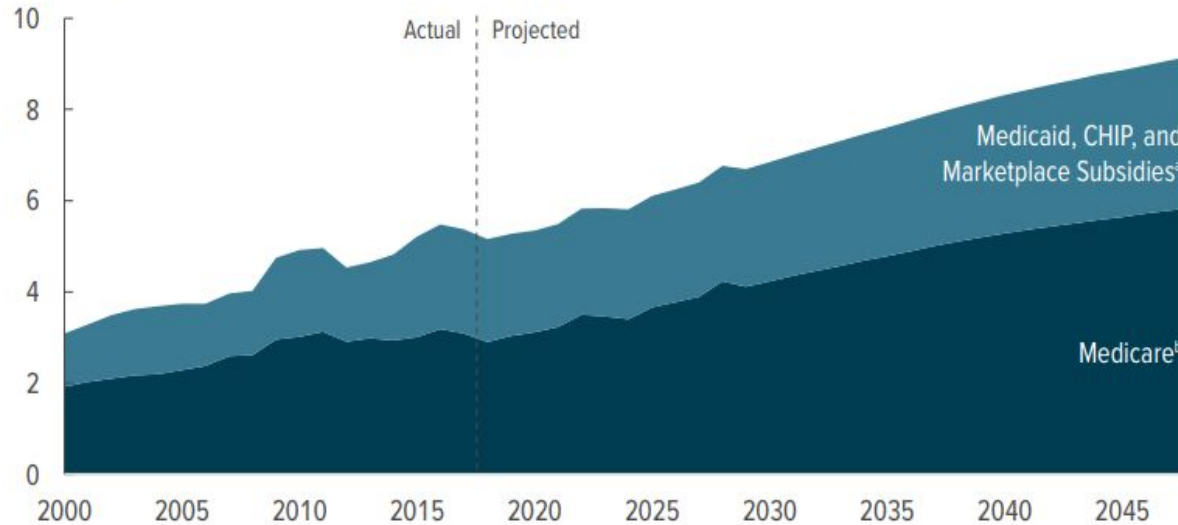


If current laws generally remained unchanged, the federal budget deficit would grow substantially over the next 30 years. Those large budget deficits would arise because spending would grow steadily and revenues would not keep pace with that spending growth.

Source: Congressional Budget Office

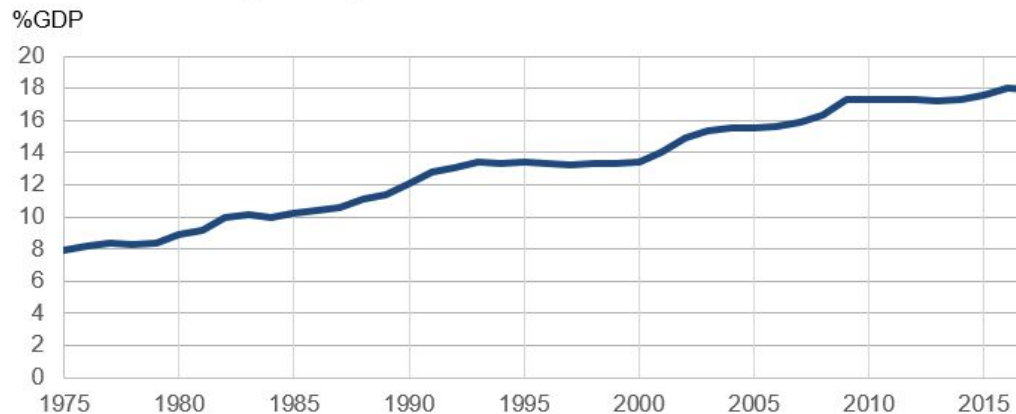
## Federal Spending on the Major Health Care Programs, by Category

Percentage of Gross Domestic Product



Medicare spending, net of offsetting receipts, would account for about three-quarters of the increase in spending for the major health care programs over the next 30 years.

### National health spending as a share of GDP



# What consequences do a large and growing federal debt have?

- Significant negative consequences of a large and growing federal debt:
  - Reduce national savings and income in long-term
  - Increase the government's interest costs, putting more pressure on the rest of the budget
  - Limit lawmaker's ability to respond to unforeseen events
  - Increase the likelihood of a fiscal crisis, a situation in which the interest rate on federal debt rises abruptly, dramatically increasing the cost of government borrowing.

# The Fiscal Ship

## Part #2 – Determining Values and Evaluating Policy Options





# See Handout #2: Select Your Governing Goals

- Before we begin the game, you'll select your governing goals. The goals are your aspirations and values – the ones that shape the kind of country we live in. Select 3 of the 10 goals.



# Fiscal Ship Governing Goals

## *Select 3 out of the 10*

- **Reduce Inequality:** The disparity between Americans who have the most and the least income is growing, mirrored by disparities in education, health, and family structure. You want to narrow the widening gaps in incomes and well-being at the top and the bottom.
- **Strengthen National Defense:** Projections of current policies show defense spending, measured as a share of the economy, falling over the next decade and then plateauing. You'd bolster the U.S. military by providing it with more personnel and more arms. (To reach fiscal sustainability, you'll have to pay for these somehow.)
- **Fight Climate Change:** You want to use government policies to promote a cleaner, healthier environment, reduce greenhouse gas emissions and avoid the damage that could be caused by global climate change.
- **Strengthen Social Safety Net:** You believe it's important for the federal government to give a hand up to those in poverty and protect those at risk of falling down the income ladder when times are tough. You want to expand and protect programs that protect the vulnerable.

**More Goals to Select from on the next two slides...**

# Fiscal Ship Governing Goals

## *Select 3 out of the 10*

- **Tax Cutter:** You believe lower taxes will boost economic growth and want to allow Americans to keep more of what they earn. Your goal is to substantially reduce federal tax revenues as a share of the economy. (To reach fiscal sustainability, you'll have to cut spending, too.)
- **Shrink Government:** You believe that we're better off with a leaner federal government, shifting responsibilities to the private, non-profit and state and local sectors. Spending on general government operations and federal programs (other than health and retirement benefits) is projected under current policy to decline over the next decade. You'd reduce it more.
- **Shield the Elderly:** Under current policy, about 60% of the increase in federal spending over the next decade will go to Social Security, Medicare, Medicaid and other major health programs, much of that for the growing number of people who will be over age 65. You want to protect benefits for senior citizens.

**More Goals to Select from on the next slide...**

# Fiscal Ship Governing Goals

## *Select 3 out of the 10*

- **Invest in the Future:** You believe in planting seeds today that will be harvested in years to come. You want policies to increase, above what's currently projected, government and private investment in children and young adults and in education, infrastructure and research that will pay off in the future. (To reach fiscal sustainability, you'll have to pay for these somehow.)
- **Fiscal Hawk:** You're not satisfied with restraining the projected increase in the federal debt so that in 25 years it's roughly where it is today, measured as a share of the overall economy. To put the government and the economy on a sounder footing, you want to reduce it substantially below today's levels.
- **Rein in Entitlements:** Spending on retirement, health and other government benefits, much of that for the elderly, account for two-thirds of non-interest spending today and threaten to squeeze out spending on everything else—from equipping soldiers with modern gear to repairing old bridges to pursuing cures for cancer. You want to restrain this spending to make room for other priorities.

# Your governing goals – Pair-and-Share

Turn to a neighbor and discuss the following questions...

**Partner #1 Explain:**

- Which goals did you choose?
- Why did you choose these goals?

**Partner #2 Explain:**

- Which goals did you choose?
- Why did you choose these goals?

**Discuss together and record your answers on Handout #3, question #3.**

- A) Do your goals work together so achieve a common objective?
- B) Do they balance both revenues and expenditures so that you will be able to put the country on a sustainable fiscal path?
- C) Are there any inherent contradictions in your selected goals that make policy-making difficult during the game?

# The Fiscal Ship

## Part #3 – Playing the Game







- You need to captain the U.S.S. Federal Budget to avoid the stormy seas of debt.
- Your mission is to pick from a menu of tax and spending options to reduce the debt from projected levels over the next 25 years and keep the debt level no higher than it is today.
- But budget decisions aren't only about fiscal sustainability. They also shape the kind of country we live in. To win the game, you need to find a combination of policies that match your values and priorities AND set the budget on a sustainable course.



# HOW TO PLAY

TO WIN THE GAME, CHOOSE SPENDING AND TAX POLICIES THAT:



1 REDUCE FUTURE DEBT  
TO TODAY'S LEVELS  
BRING THIS LINE DOWN TO THE  
TARGET LEVEL

2 MEET YOUR GOVERNING GOALS  
EARN ALL 3 STARS HERE

Pick Your Goals

## [The Fiscal Ship Game Link](#)

### [Econedlink Instructions](#)

### [Student Handout](#)

### [Instruction Slides](#)



# Post-Game Class Discussion

- How difficult was it to pursue your goals while also hitting the debt target?
- Which of your goals were most difficult to achieve?
- Which of your policy choices had the largest impact on your fiscal target?  
Which barely moved the line?
- Were you surprised by the magnitude of any policy choices?
- What do you think the political obstacles would be to hitting the debt target?
- What do you think would be the impact on the American middle class of the choices you made?
- Did the game make you reevaluate your initial governing goals?

# What are the solutions?

## The Size of Policy Changes Needed to Make Federal Debt Meet Two Possible Goals in 2048

If lawmakers aimed for debt in 2048 to equal...

**41% of GDP**  
(Its 50-year average)

**78% of GDP**  
(Its Current Level)

Each year, they would need to reduce deficits as a share of GDP by...

**3.0% of GDP,**  
which is equal to a

17% ▲ increase in revenues  
or a  
15% ▼ cut in spending

**1.9% of GDP,**  
which is equal to a

11% ▲ increase in revenues  
or a  
10% ▼ cut in spending

In 2019, that would amount to...

**\$630 billion**

**\$400 billion**

Note: Federal budget spending increased from \$3.982 trillion in FY 2017 to \$4.407 trillion in FY 2018...an increase of 10.67%\*



If the changes were increases (of equal percentage) in all types of revenues, one effect in 2019 is that taxes per household would be higher than they would be under current law by...



Values are for households in the middle fifth of the income distribution.  
Under current law, their taxes are projected to average \$12,000.

If the changes were cuts (of equal percentage) in all types of noninterest spending, one effect in 2019 is that initial Social Security benefits would be lower than they would be under current law by...

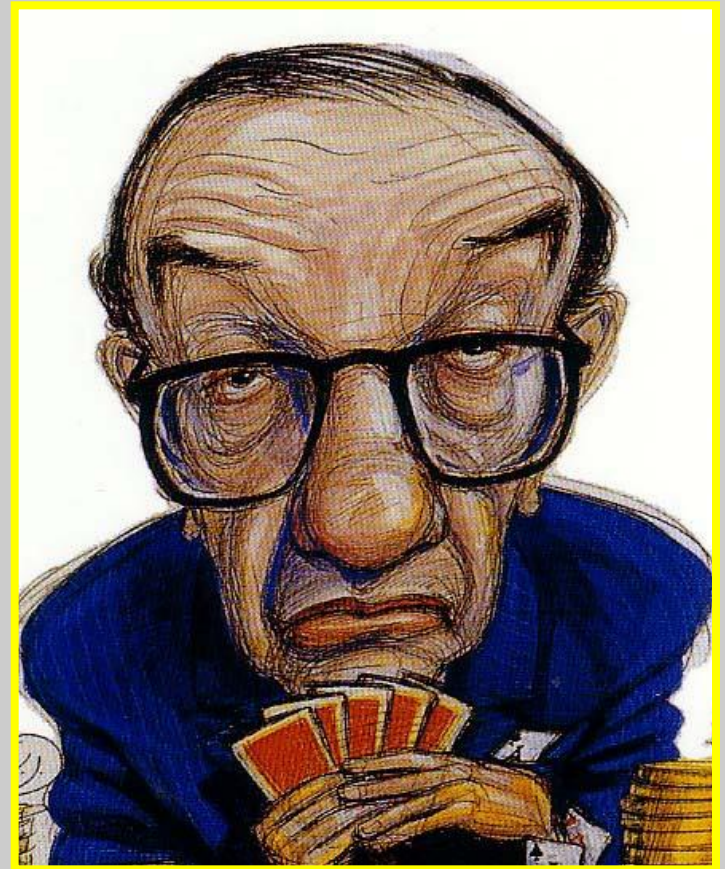


Values are averages for people in the middle fifth of the lifetime earnings distribution who were born in the 1950s and who would claim benefits at age 65.  
Under current law, their benefits are projected to be \$19,000.



# MONETARY POLICY

*the "Fed"*



**Alan Greenspan: Fed Chair 1997-2006**



# How can the Government try to Stabilize the Economy?

The Government has two different tool boxes it can use:

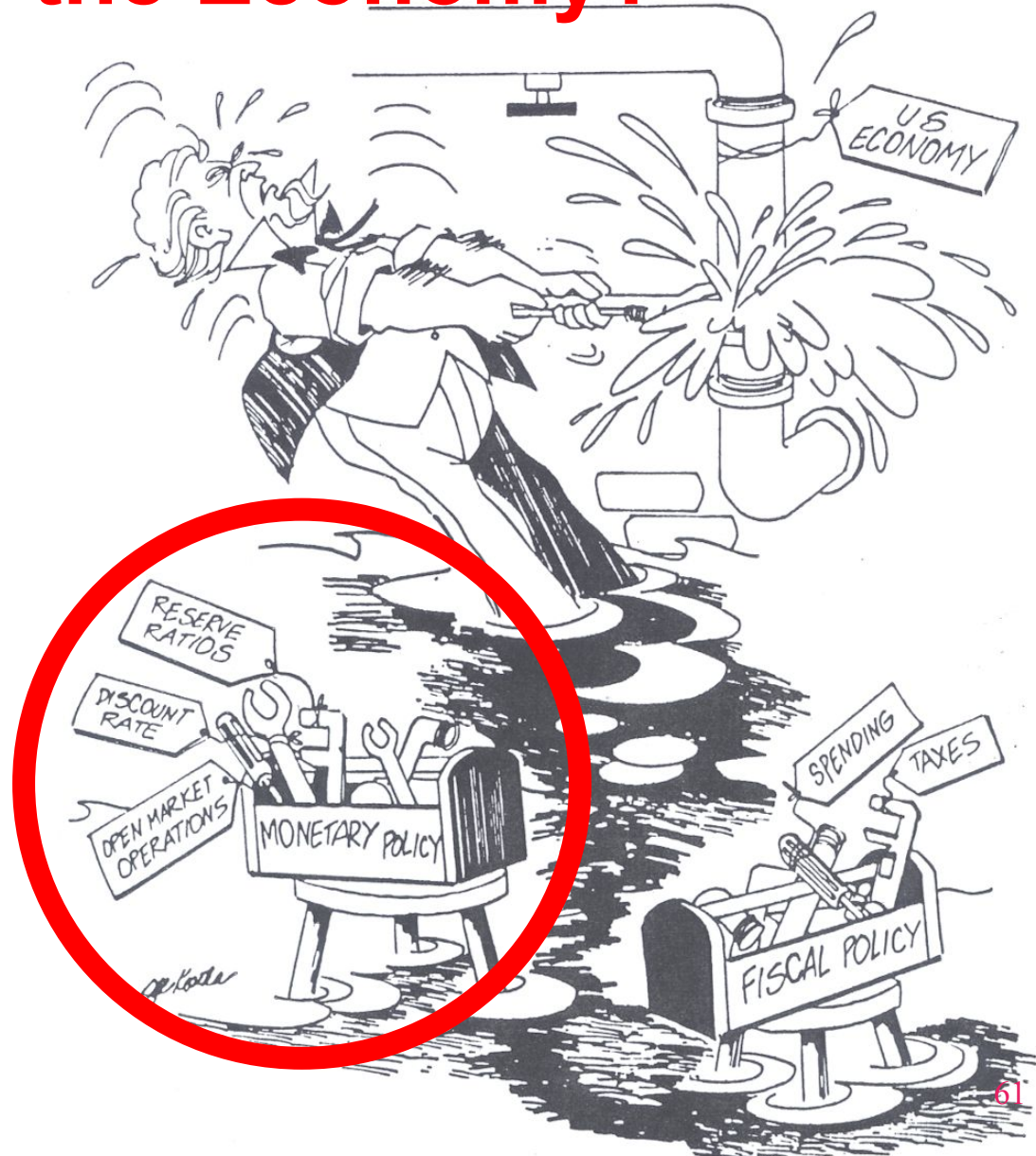
## 1. Fiscal Policy-

Actions by Congress to stabilize the economy.

OR

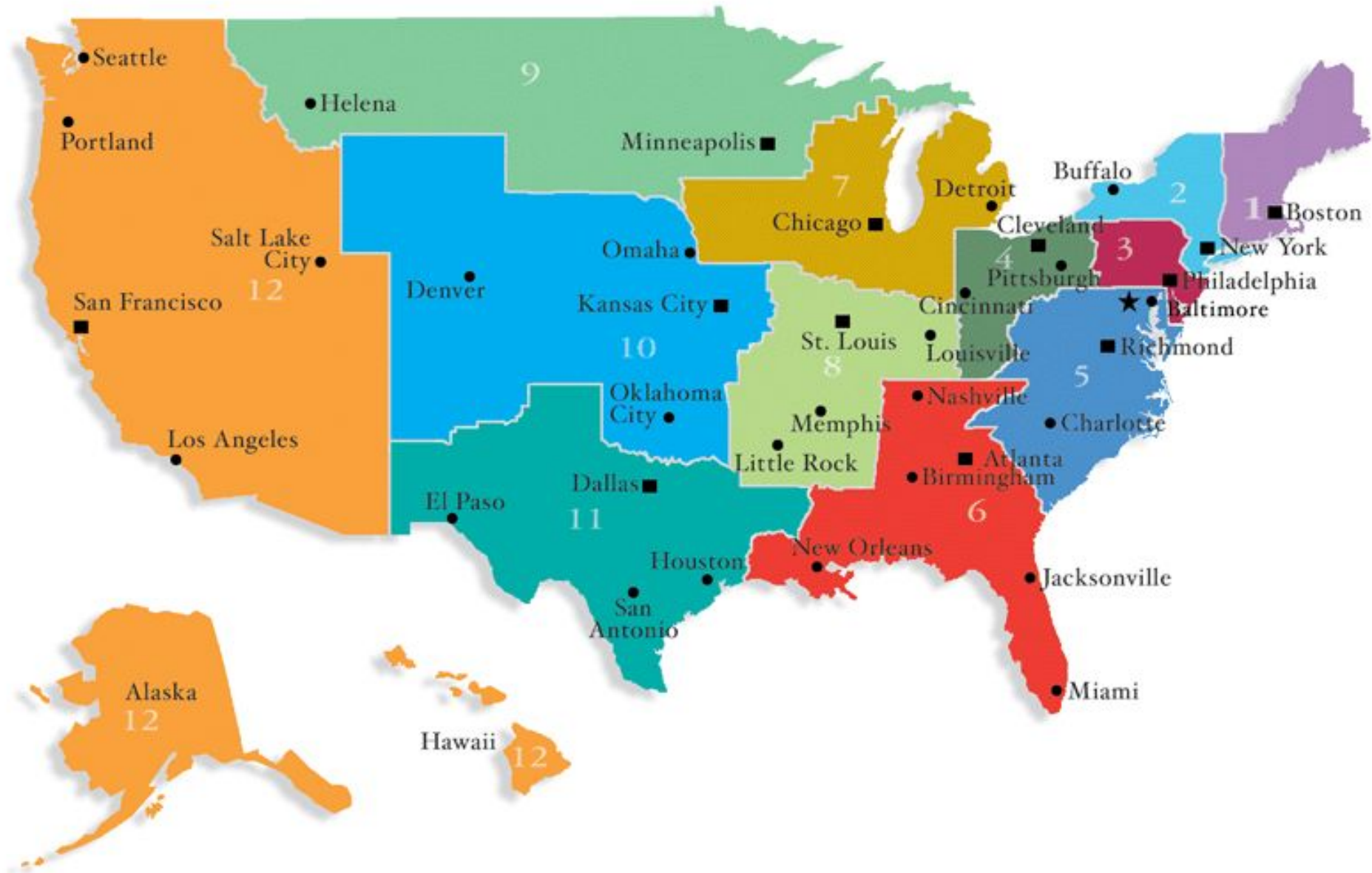
## 2. Monetary Policy-

Actions by the Fed to stabilize the economy.





# 12 Federal Reserve Districts

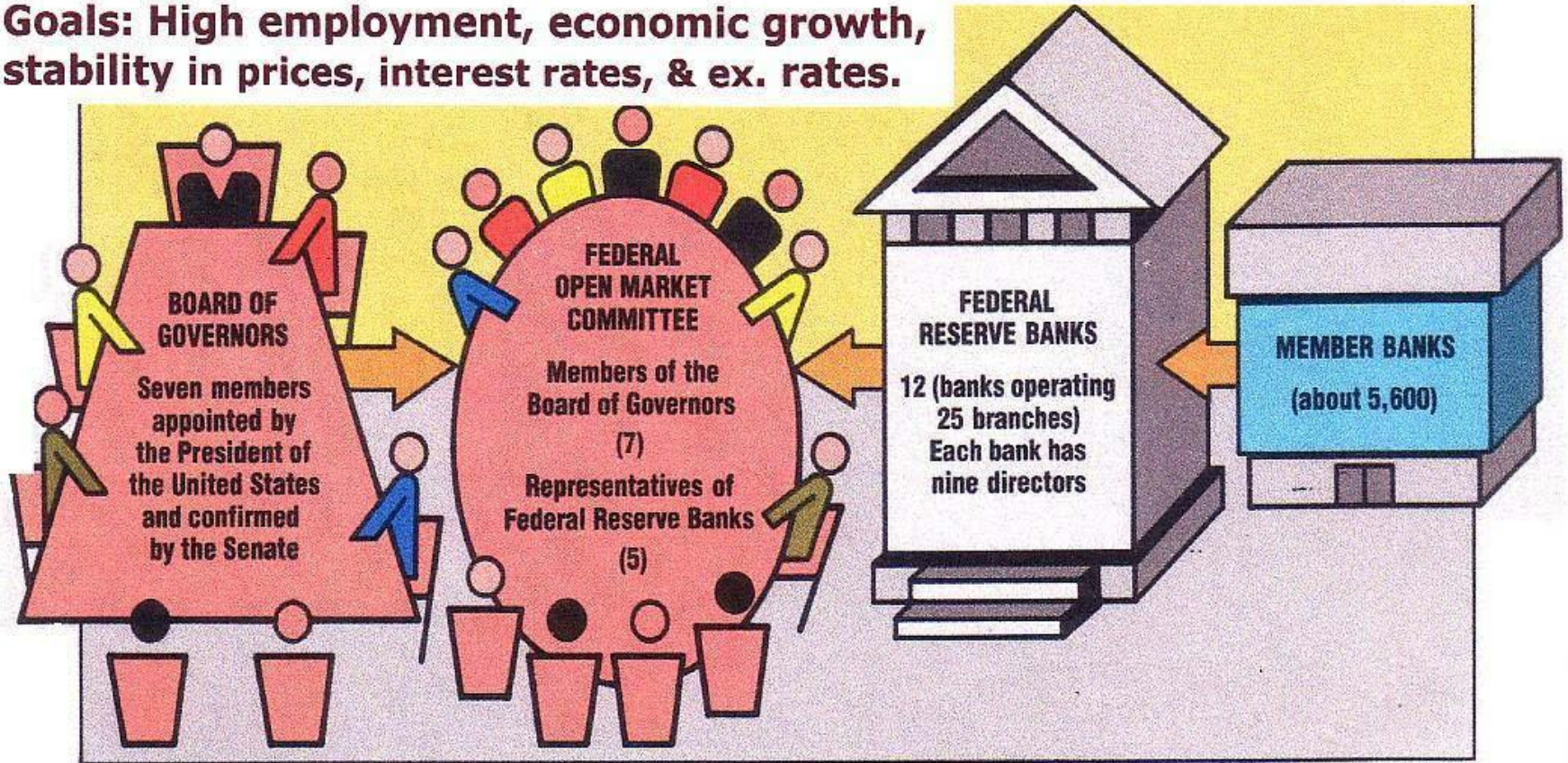




# Structure of the Fed

1.) Board of Governors 2.) FOMC 3.) 12 Fed Banks 4.) Member Banks

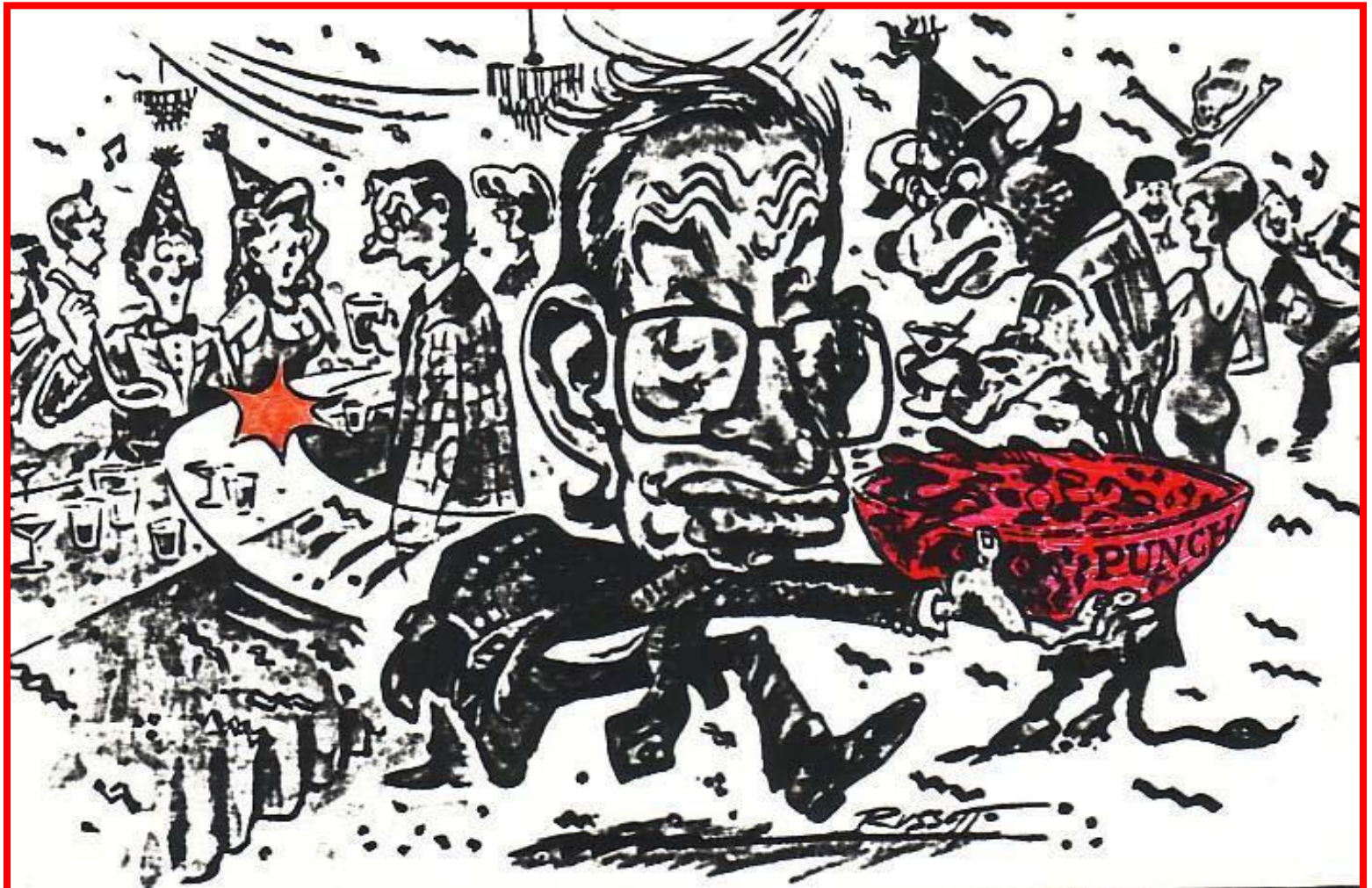
Goals: High employment, economic growth, stability in prices, interest rates, & ex. rates.





*“When the party gets too good, it’s the job of the Fed to take away the punch bowl.”*

***During a recession, the Fed is happy to “spike the punch.”***



**MACCRO**



**MRU**





# Federal Funds Rate:

The target rate of Monetary Policy, it is where banks that need reserves go to borrow cash from banks that have excess reserves.

## Last 45 Years



# Federal Funds Rate:

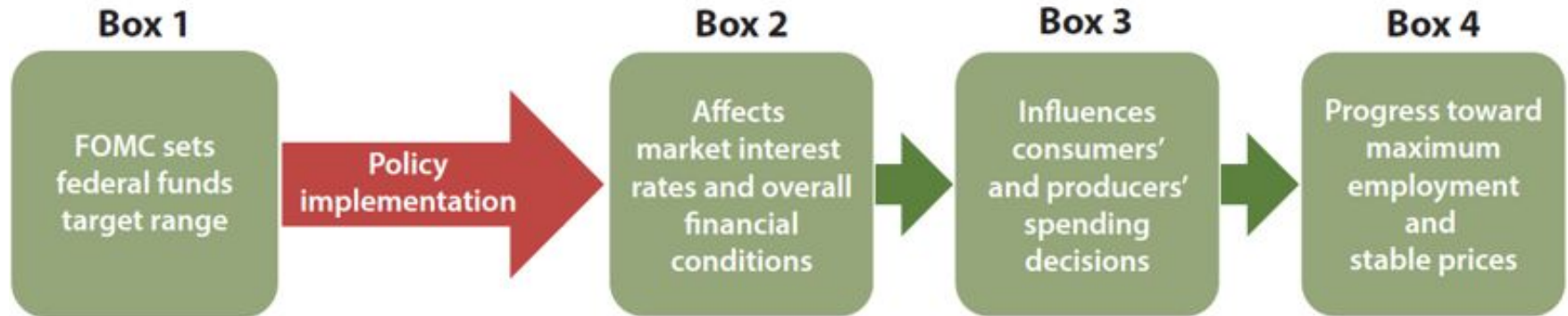
The target rate of Monetary Policy, it is where banks that need reserves go to borrow cash from banks that have excess reserves.

**Last 10 Years: Currently 1.21%**

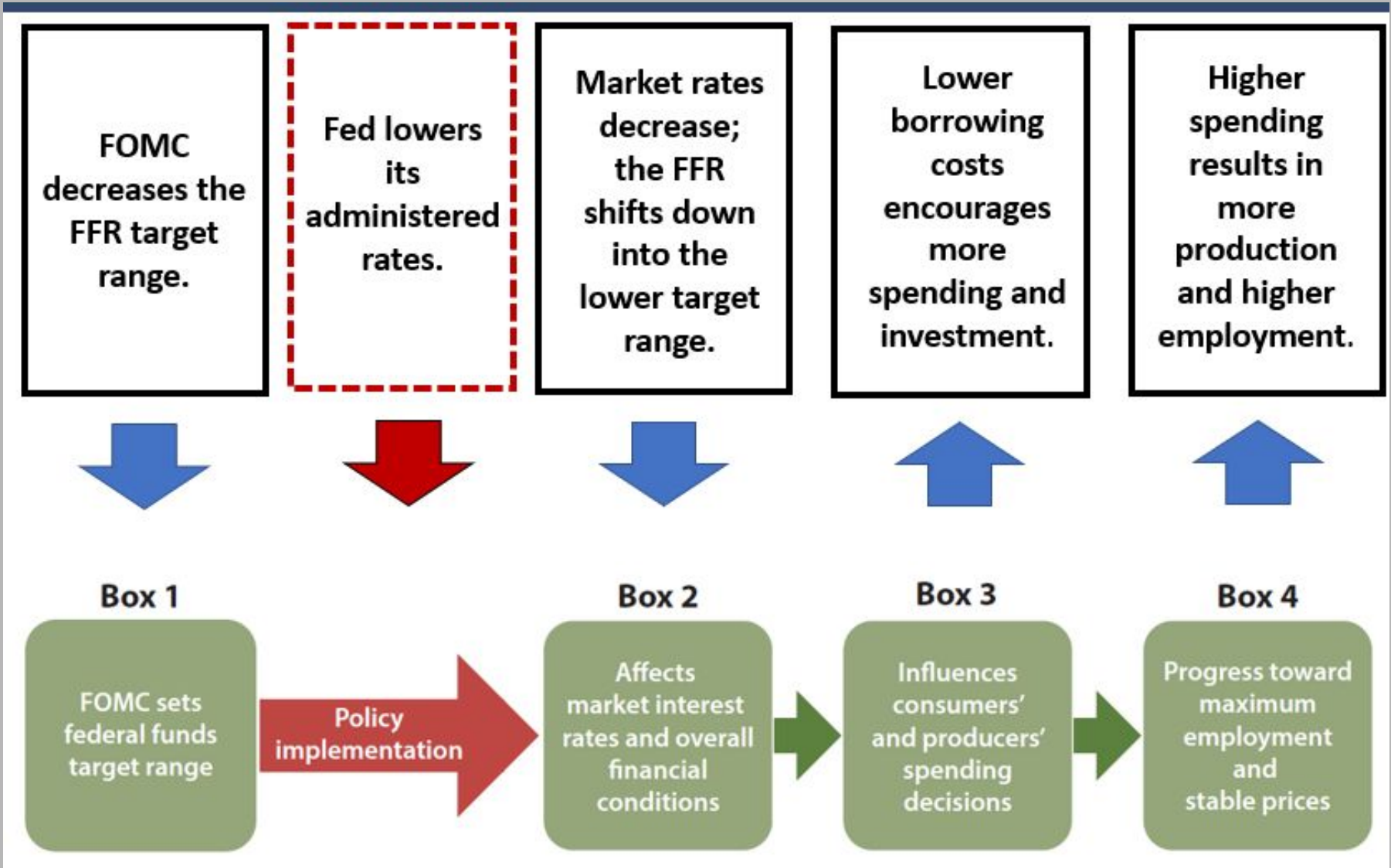


# Monetary Policy in Action

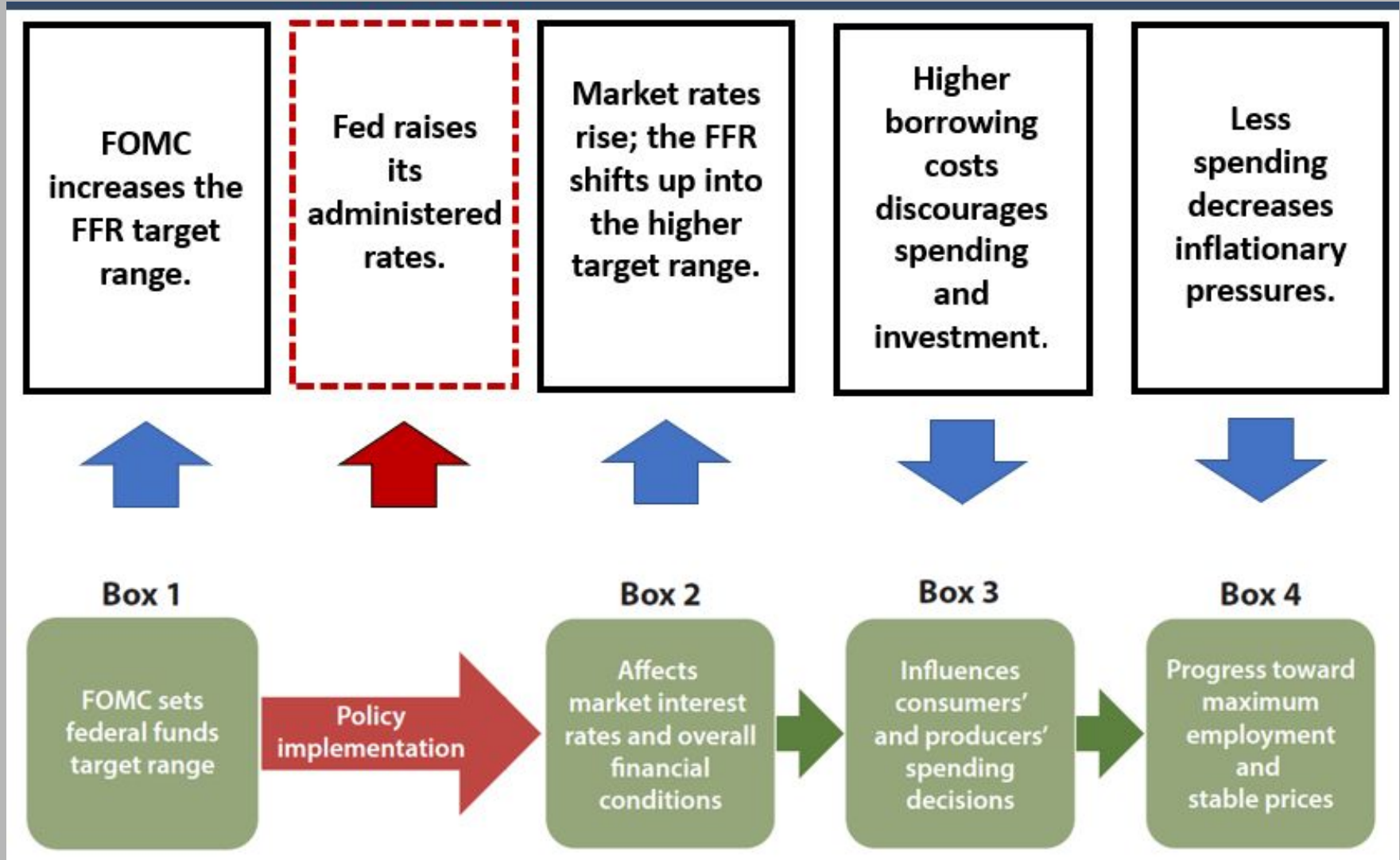
- The FOMC sets the target range for the federal funds rate.
- This affects market interest rates and overall financial conditions.
- This also influences the decisions of households and businesses.
- It ultimately affects employment and inflation.



# Expansionary Monetary Policy for a Recession



# Contractionary Monetary Policy for Inflation



# What Is Quantitative Easing (QE)?



Occurs when the Fed buys long-term securities to boost the economy

It increases money supply and lowers long-term interest rates

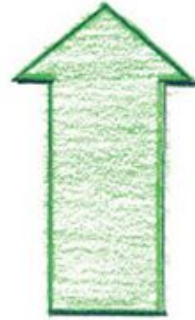
It makes it easier for banks to lend and people to borrow



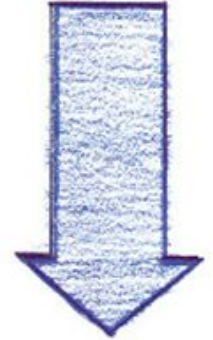
# Open Market Operations

## Easy Money Policy

Open Market Operation:  
Buy Securities



Money Supply



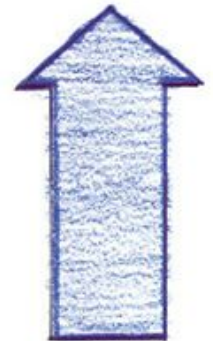
Interest Rates

## Tight Money Policy

Open Market Operation:  
Sell Securities



Money Supply



Interest Rates

# Economic Data Lesson: Economic Policy Options

Updated: October 13 2021, Author: Scott Wolla

 TEACHER VERSION

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**This lesson introduces students to the economic data that economists use to assess the health of the economy. This lesson focuses on assessing the health of the economy using the content learned in the previous lessons, and introduces the role of monetary policy to influence the economic growth, inflation, and employment.**

# ECONOMIC POLICY DASHBOARD



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Economic Research Resources

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## Economic Policy Dashboard

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Report an issue

### Description

Imagine you are a member of the FOMC. You must cast a vote at the next FOMC meeting concerning your preference for a federal funds rate target. Use the data below to make and defend your decision.

Box 1 - Real Gross Domestic Product

**-1.600**

*Percent Change from Preceding Period*  
Q1 2022

Box 2 - Real Gross Domestic Product

*Compounded Annual Rate of Change*

Date	Value
Q1 2022	-1.573
Q4 2021	6.895
Q3 2021	2.303
Q2 2021	6.726
Q1 2021	6.278
Q4 2020	4.536
Q3 2020	33.783
Q2 2020	-31.236
Q1 2020	-5.113
Q4 2019	1.890

# Economic Data Lesson: Economic Policy Options

Updated: October 13 2021, Author: Scott Wolla

 TEACHER VERSION

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## Resource List

- [Activity sual](#) : Using Data to Discuss Policy Options
- [Vi11](#): Economic Data Review
- [Visual 2](#): Key Facts about the Federal Reserve
- [Economic Policy Dashboard](#)
- [FOMC Projections](#)







# BIGGEST BILL EVAH IN CIRCULATION TO THE PUBLIC





As of 2009, there were only 336 known \$10,000 bills in circulation; 342 remaining \$5,000 bills; and 165,372 remaining \$1,000 bills. Due to their rarity, collectors will pay considerably more than the face value of the bills to acquire them.



# **SALVADOR DALI – Made his own currency**



**did you know?**

[did-you-know.tumblr.com](http://did-you-know.tumblr.com)

**Salvador Dali used to avoid paying at restaurants by drawing on checks. He knew that the owner would never want to cash such a valuable piece of art.**





# Teaching the New Tools of Monetary Policy



The Federal Reserve has changed the way it implements monetary policy. For example, the Fed's new tools include interest on reserves and the overnight reverse repurchase agreement facility. But many of the recent changes are not reflected in resources for teaching monetary policy to college and high school students.

This webpage is intended to provide educators with articles and guided reading activities they may leverage as they transition to teaching the new tools of monetary policy.

## Classroom Resources

[How Does the Fed Use Its Monetary Policy Tools to Influence the Economy?](#) Page One Economics, May, 2022.

[How the Federal Reserve Implements Monetary Policy](#), Lecture Guide.

[Monetary Policy](#), The Economic Lowdown Video Series.

[Temporary Open Market Operations and Large-Scale Asset Purchases](#). *Page One Economics*®, Summer, 2020.

[The Fed's New Monetary Policy Tools](#), Econ Lowdown Online Module.

[Timeline: Federal Reserve Monetary Policy](#), FRASER website.

# DESPICABLE ME





# Intro to Bitcoin / Cryptocurrencies







## OBJECTIVE

Define “cryptocurrency” and understand why it exists, how it works, and how/why investors are getting exposure to crypto.

# “Crypto” from cryptography

(SECRET/HIDDEN)

(WRITING)



**Cryptography** is the science of taking data & securing it during transfer or storage by converting it into an uncrackable code (encryption) that only someone with the key can decipher (decryption). It is an essential aspect of modern data security.

ENIGMA  
MACHINE:



VOCAB:

**CRYPTOGRAPHY**

**CIPHER**

**DECIPHER**

# Bitcoin: 1st form of cryptocurrency

1

## Created in 2009

Satoshi Nakamoto is listed as author of the whitepaper in 2008.

[Satoshi's White Paper link](#)

Built upon ideas and writings of cypherpunks.

3

## Blockchain technology\*

A system for recording information in a way that makes it nearly impossible to change, hack, or cheat because it's secured by advanced cryptography.

2

## Decentralized

Transactions are carried over a decentralized network called the Bitcoin blockchain. This means that no one person/entity owns or controls it.

4

## Capped at 21 million

Only 21 million bitcoins will ever exist. 2140 is the year predicted when all BTC will be in circulation.

ANNALS OF MONEY DECEMBER 13, 2021 ISSUE

# HALF A BILLION IN BITCOIN, LOST IN THE DUMP

*For years, a Welshman who threw away the key to his  
cybercurrency stash has been fighting to excavate the local  
landfill.*

By D. T. Max

December 6, 2021



[Link: Half a Billion, Lost in the Dump](#)



## Let's start with the basics

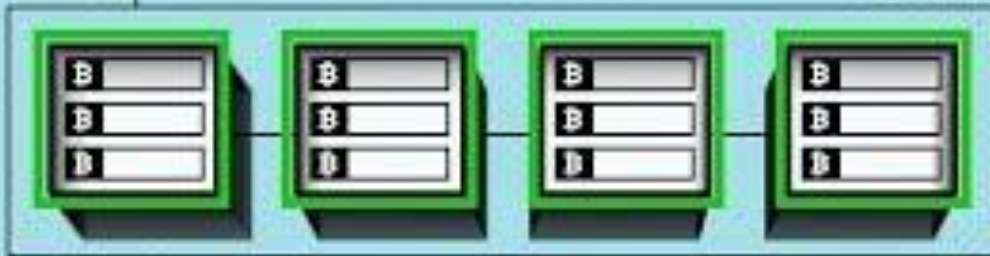


What is this mysterious digital currency? On the next slide, you'll watch a Two Cents video that will help you understand it better.



**As you watch, listen carefully for key terms that help to explain Bitcoin. Be prepared to complete a matching pairs exercise after the video.**

# BLOCKCHAIN



The transaction described in the video began with the consumer logging into their bitcoin **wallet** which they accessed using their **private** key, a unique combination of **letters** and numbers.

Their transaction was shared with everyone in the network and added to a shared list of recent transactions known as a **block**.

Every **10** minutes the newest block of transactions is added on or chained to all the previous blocks...that's how you get a **blockchain**.

To ensure that each block of transactions is verified, a subset of bitcoin's network joins a race to solve a very difficult **math** puzzle.

If they solve it first, their record of the block of transactions becomes the official **record**.

They are rewarded with **bitcoin** for their own and the network gets a new block of the chain.

The mining process will continue until the number of bitcoin in circulation hits **21** million which is expected in **2140**.

## A Hypothetical Bitcoin Transaction

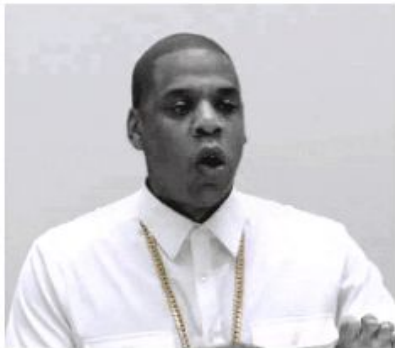
Using everyone's favorite celebrity couple

1. Beyonce wants to send Jay-Z \$50,000 worth of BTC for his birthday. She asks Jay for his Bitcoin address (also known as a “**public key**”). Jay's public key is linked to the exchange or crypto wallet he set up.

It looks something like this:

[3D94LKmtQuVG8JFB3F7cB7gwj614yG4CPg](#)

Jay keeps his **private key** in a secure place and does not share it with anyone, *not even with Bey!* He knows his private key is the only way to access and manage his crypto funds.



*NOTE: Think of public and private keys like a username and password. One allows you to identify yourself for anyone publicly, while the other one allows you to prove it's really you so that you can unlock access.*

*Unlike a password though, a private key can never be reset or recovered if lost!*

# Pros

1. Transparency and user anonymity
2. Decentralized: peer to peer
3. Lower fees: Implications for the unbanked
4. Accessibility and liquidity
5. High return potential

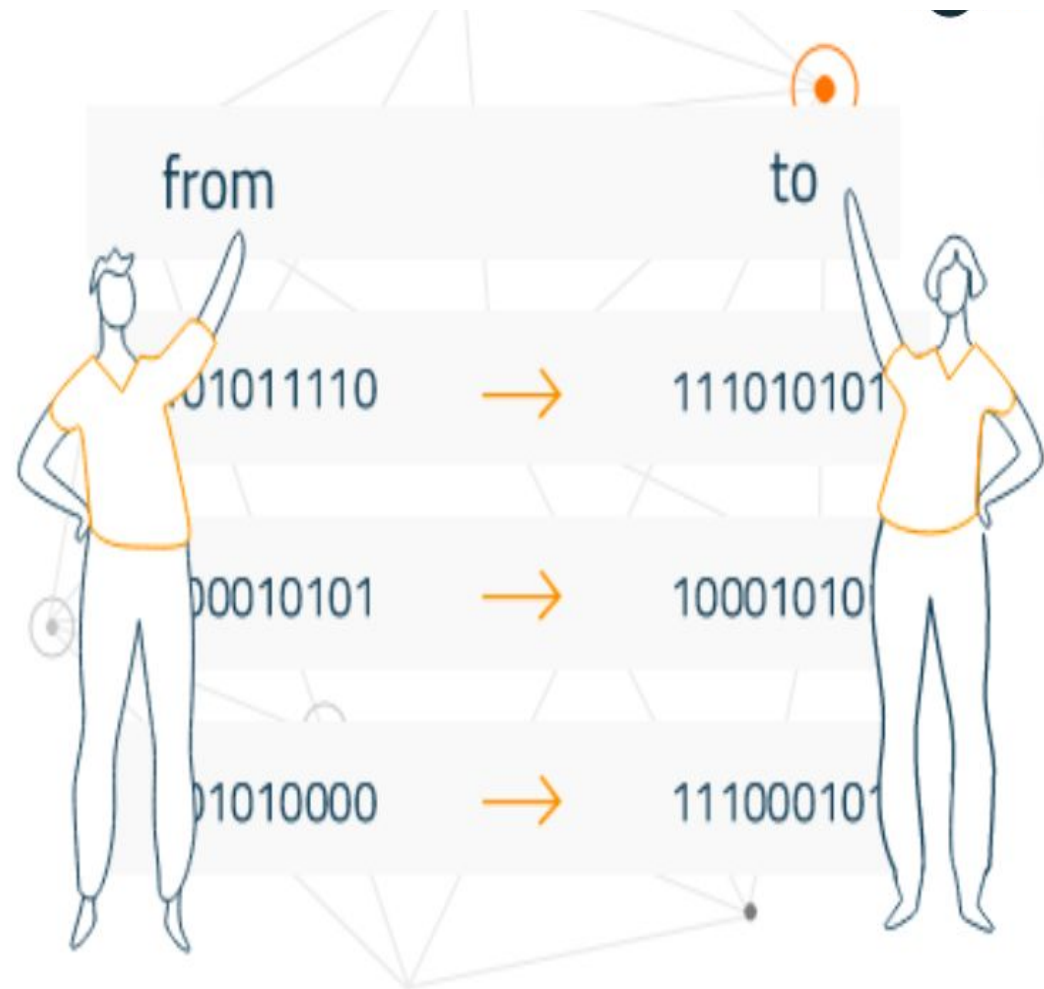




## 1. Transparency and user anonymity

All Bitcoin transactions are public, traceable, and permanently stored in the Bitcoin network. Anyone can see the balance and all transactions of any address on this public ledger.

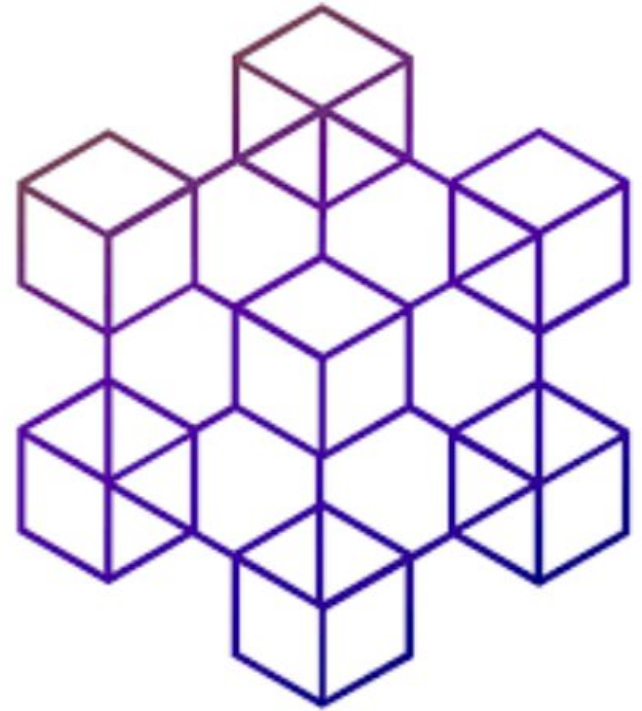
This is an unprecedented level of transparency that most people are not used to dealing with.



## 2. Decentralized: peer to peer

The blockchain functions in a decentralized way so that no single person or group has control—rather, all users collectively retain control.

Decentralized blockchains are immutable, which means that the data entered is irreversible.



### 3. Lower fees: Implications for the unbanked

Bitcoin does away with traditional banking fees. No account maintenance fees, minimum balance fees, overdraft charges, returned deposit fees, wire transfer fees, nor foreign transaction fees (among many others).

Bitcoin transactions have no intermediary institutions or government involvement, so the costs of transacting are generally\* lower compared to those for bank transfers.



~~Fees~~

## 4. Accessibility and liquidity

Bitcoin provides global accessibility. It allows any business or individual to securely send and receive payments anywhere at any time, with or without a bank account.

Bitcoin is also highly liquid. Anyone can liquidate a large sum of Bitcoin at any moment in time with minimal discrepancies on most exchanges.



## 5. High return potential

If you were among the few people lucky enough to know about and believe in Bitcoin back in Dec 2011 and you had invested just \$1, the amount you would have today is \$16,395.84.

That's an ROI of 1,639,583.95%!

Bitcoin was  
\$20,834 as of  
7/10/21

\$3.03 on 12/7/11



# Cons

1. Volatility
2. No government regulations
3. Irreversible
4. Limited use and lack of scalability
5. High energy consumption / bad for environment.



## 1. Volatility

Cryptocurrency is a nascent industry, and as a result it's highly volatile. The price of BTC has moved wildly over the past few years.

At the start of 2021, it was trading below \$30,000 but suddenly started peaking in February and by April it almost doubled.

Later that month, it crashed to where it was in January. Its recovery started in June and by August it had crossed \$50,000. After more ups and downs, it hit an all time high of \$68,521 on 11/5/21.



## 2. No government regulations

Many crypto enthusiasts believe having no government regulation is a PRO. It sets cryptocurrency apart from the traditional financial sector and banking world. But, this means there's no equivalent to the Federal Deposit Insurance Corporation that would cover losses on your cryptocurrency account.

If your assets are stolen, you're out of luck!

There's no way to determine who is the rightful owner if 2 people have the same private key because Bitcoin addresses don't have conventional forms of ID associated with them like a first or last name, or government ID.



### 3. Irreversible

Bitcoin is designed in a way that changes how we're used to transacting, particularly with credit cards. Transaction reversibility, aka "chargebacks", is a process that's not possible for Bitcoin transactions because there's no third party interference in the management or deliverance of the funds. The transaction is managed solely between the sender and the recipient.

In situations where you've accidentally sent funds to an incorrect unknown Bitcoin address, it's nearly impossible to recover your funds.



## 4. Limited use and lack of scalability

Bitcoin has a scalability problem. There's a limited capacity to handle large amounts of transaction data on Bitcoin's blockchain network in a short span of time.

Increasing volume of trades causes a backlog. Miners grant priority to the transactions that offer the highest fees, which gets costly. This limits BTC use because if we all transacted in BTC daily, it would cause massive congestion to the network and fees would spike. This is why many experts now view Bitcoin as a store of value rather than a currency.





## 5. High energy consumption / bad for environment.

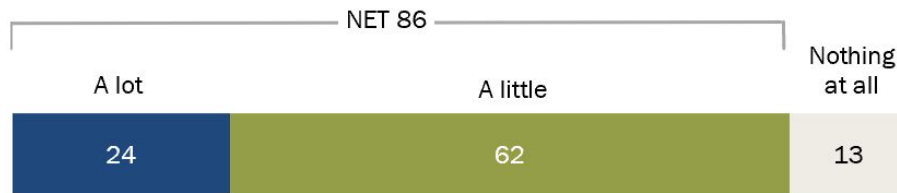
The Bitcoin network uses astonishing amounts of electricity. The process of creating Bitcoin consumes around 91 terawatt-hours of electricity annually, more than is used by Finland, a nation of about 5.5 million!

It requires highly specialized machines, a lot of money, a big space and enough cooling power to keep the constantly running hardware from overheating. That's why mining now happens in giant data centers rather than in people's homes. The energy usage of the Bitcoin network has increased about tenfold in just the past 5 years.



## Nearly nine-in-ten Americans say they have heard at least a little about cryptocurrency ...

% of U.S. adults who say they have heard \_\_\_\_, if anything, about cryptocurrency such as Bitcoin or Ether



## ... and 16% say they have ever invested in, traded or used one themselves

% of U.S. adults who say they themselves \_\_\_\_, ever invested in, traded or used a cryptocurrency such as Bitcoin or Ether



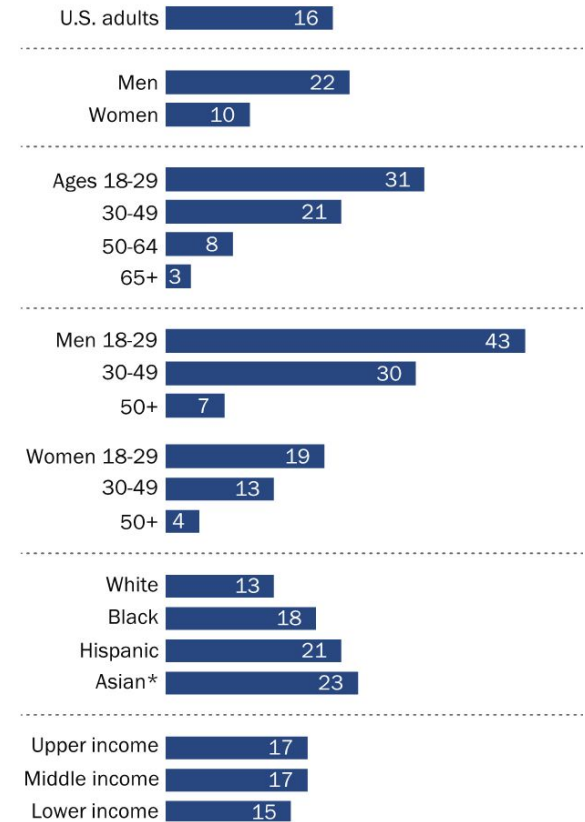
Note: The 14% of U.S. adults who said they had heard nothing at all about cryptocurrency, or gave no answer, did not receive the question about investing in, trading or using a cryptocurrency. Those who did not give an answer are not shown.

Source: Survey of U.S. adults conducted Sept. 13-19, 2021.

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## 43% of men ages 18 to 29 say they have invested in, traded or used a cryptocurrency

% of U.S. adults who say they themselves have ever invested in, traded or used a cryptocurrency such as Bitcoin or Ether



\*Asian adults were interviewed in English only.

Note: Family income tiers are based on adjusted 2020 earnings. White, Black and Asian adults include those who report being only one race and are not Hispanic. Hispanics are of any race. Those who did not give an answer are not shown.

Source: Survey of U.S. adults conducted Sept. 13-19, 2021.

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# Bitcoin launched 13 years ago this month—here are 8 milestones from the past year

Published Mon, Jan 3 2022•1:07 PM EST • Updated Thu, Jan 6 2022•12:22 PM EST



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# Thank You!

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