



Soochow University International Programs

2021 SCUIP Winter Session I
ECON202



Lecture 6: Saving, Investment, and the Financial System

ECON202: Macroeconomics
Soochow University



Prerequisites

- These are some of the things you need to know to understand today's topic:
 - GDP, its components, and the national income identity
 - Theory of supply and demand (microeconomics)
 - Measurement of the inflation rate
 - Real interest rate and nominal interest rate

What's in This Topic?

- Why should we care about a country's levels of saving and investment?
- What is a nation's financial system? What does it do and why does it matter?
- Why are the levels of saving and investment high at some (or, for some countries) and low at other times (or, for other countries)?
- What can the government do to change a nation's saving and investment level?
- What should the government do in this regard?

Importance of Saving and Investment

- Our standard of living depends on our productivity.
- Our productivity depends on the availability of physical capital, human capital, natural resources and technology.
- Improvements in our standard of living (or, simply, economic growth) requires increases in the availability of the above resources.
- And that in turn requires saving and investment.



Saving and Investment

- In a earlier topic (Measuring a Nation's Income) **investment** was defined as:
 - “the purchase of goods (called capital goods) that will be used in the future to produce more goods and services. Investment is the sum of purchases of business capital, resident capital, and inventories.”
 - In short, investment is spending by business on equipment, structures, and software, and spending by households on new homes.



Saving and Investment (Cont'd)

- **Saving** is the part of income that is not spent on consumption. This unspent income is used to buy financial assets such as bank deposits, stocks, and bonds.
- Warning: Non-economists usually refer to the purchase of stocks, bonds, etc., as investment. Economists call that saving.

The Financial System

- The **financial system** consists of the institutions in the economy that help to match households' saving with firms' investment.
- It moves the economy's scarce resources from savers to investors (or, from lenders to borrowers).

Financial Institutions In The U.S. Economy

- The **financial system** is made up of financial institutions that coordinate the actions of savers and borrowers.
- Financial institutions can be grouped into two categories:
 - financial markets and
 - financial intermediaries



Financial Institutions In The U.S. Economy (Cont'd)

- **Financial markets** are the institutions through which savers can **directly** provide funds to borrowers.
- **Financial intermediaries** are financial institutions through which savers can **indirectly** provide funds to borrowers.



Financial Institutions In The U.S. Economy (Cont'd)

- Financial markets
 - Stock Market
 - Bond Market
- Financial Intermediaries
 - Banks
 - Mutual Funds



Financial Markets

- The Bond Market
 - A **bond** is a certificate of indebtedness that specifies obligations of the borrower to the holder of the bond.
 - The sale of bonds to raise money is called **debt financing**.

Financial Markets (Cont'd)

- The Bond Market
 - Characteristics of a Bond
 - ▷ Term: The length of time until the bond matures.
 - ▷ Credit risk: The probability that the borrower will fail to pay some of the interest or principal.
 - ▷ Tax Treatment: The way in which the tax laws treat the interest on the bond.
(Municipal bonds are federal tax exempt)



Financial Markets (Cont'd)

- The Stock Market
 - **Stock** represents a claim to partial ownership in a firm and is therefore, a claim to the profits that the firm makes.
 - The sale of stock to raise money is called **equity financing**.
 - ▷ Compared to bonds, stocks offer both higher risk and potentially higher returns.



Financial Markets (Cont'd)

- The Stock Market
 - The most important stock exchanges in the United States are the New York Stock Exchange, the American Stock Exchange, and NASDAQ.
 - Most newspaper stock tables provide the following information:
 - ▷ Price (of a share)
 - ▷ Volume (number of shares sold)
 - ▷ Dividend (profits paid to stockholders)
 - ▷ Price-earnings ratio (P/E ratio)



Financial Intermediaries

- **Financial intermediaries** are financial institutions through which savers can indirectly provide funds to borrowers.
- Examples:
 - Banks
 - Mutual Funds
 - Other



Financial Intermediaries (Cont'd)

- Banks
 - take deposits from people who want to save and use the deposits to make loans to people who want to borrow
 - pay depositors interest on their deposits and charge borrowers slightly higher interest on their loans.

Financial Intermediaries (Cont'd)

- Banks
 - Banks help create money by allowing people to write checks against their deposits.
 - ▷ Money is anything that people can easily use as payment in transactions.
 - This facilitates the purchases of goods and services.



Financial Intermediaries (Cont'd)

- Mutual Funds
 - A **mutual funds** sells shares to the public and uses the proceeds to buy various types of stocks, bonds, and other financial assets.
 - The profits/losses are shared with the shareholders.
 - Mutual funds enable people with small amounts of money to easily diversify.



Financial Intermediaries (Cont'd)

- Other Financial Institutions
 - Credit unions
 - Pension funds
 - Insurance companies
 - Loan sharks



Saving and Investment In the National Income Accounts

- Recall that GDP is both total income in an economy and total expenditure on the economy's output of goods and services:

$$Y = C + I + G + NX$$

Some Important Identities

- In this topic, we assume a **closed economy** – one that does not engage in international trade.
- In such an economy, net export is zero: $NX = 0$.
- Therefore, $Y = C + I + G + NX$ becomes

$$Y = C + I + G$$

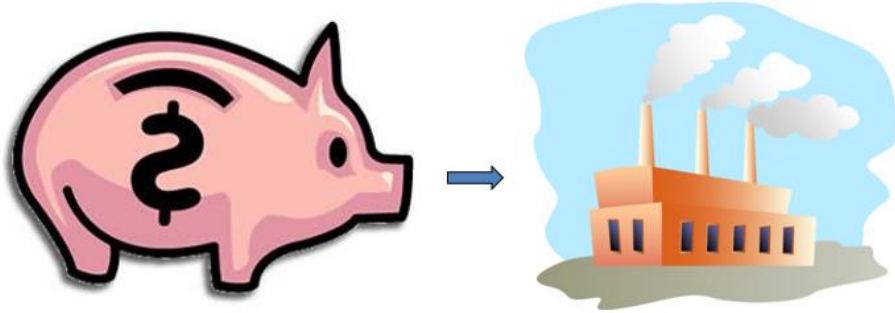
- Now, subtract C and G from both sides of the equation:

$$Y - C - G = I$$

Saving = Investment

$$Y - C - G = I \rightarrow S = I$$

National Saving (S)
is what's left of
total income (Y)
after household
consumption (C)
and government
purchases (G):
 $S = Y - C - G$



The saving of households ends up
loaned to businesses, who then spend
the borrowed money

National Saving = Private Saving + Public Saving

$$S = Y - C - G$$

$$S = Y - C - G - T + T$$

$$S = Y - T - C + T - G$$

Private Saving:

$$S_p = Y - T - C$$

Public Saving:

$$S_g = T - G$$

The government's net tax revenues are denoted T .

T = tax revenues – transfer payments

$Y - T$ is total *after-tax income* or *disposable income*

National Saving = Private Saving + Public Saving

$$S = S_p + S_g$$

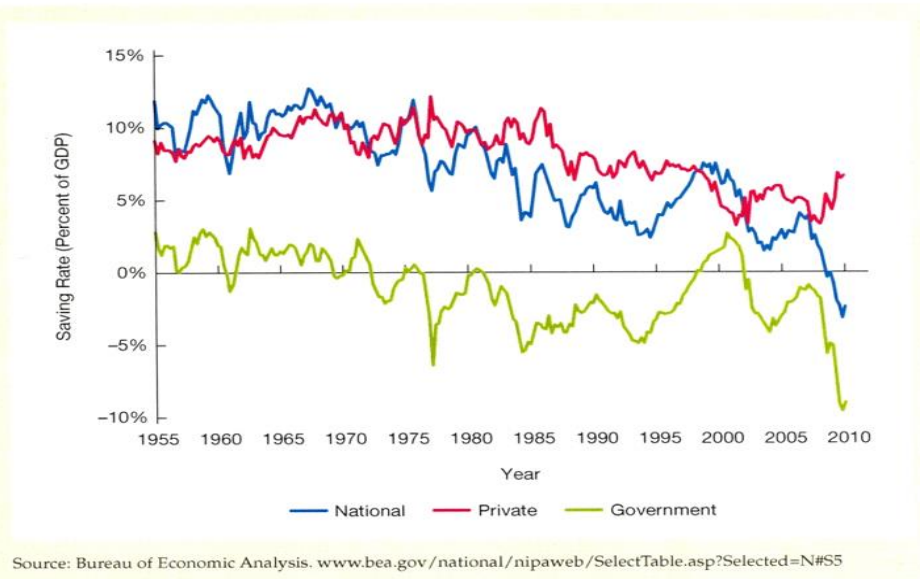
National Saving = Private Saving + Public Saving (Cont'd)

$$S = S_p + S_g$$

FIGURE 4.1

Three Measures of the Saving Rate in the United States, 1955–2010

The private saving rate declined dramatically from the 1980s through the mid-2000s, only rising since 2007. Starting in the early 2000s, the government has been dissaving at a very high rate, leading to a decline in the national saving rate.



Source: Bureau of Economic Analysis. www.bea.gov/national/nipaweb/SelectTable.asp?Selected=N#S5

The Meaning of Saving and Investment

- Budget Surplus and Budget Deficit
 - If $T > G$, the government runs a **budget surplus** because it receives more money than it spends.
 - ▷ $T - G$ represents public saving
 - If $G > T$, the government runs a **budget deficit** because it spends more money than it receives in tax revenue.
 - ▷ Fun fact: In the 2013 fiscal year, the US federal government ran a budget deficit of \$680 billion (or, 4.1 percent of the GDP of the United States)



The Market for Loanable Funds

- We have just seen that the amount of saving must be equal to the amount of investment.
- But what about **desired** saving and **desired** investment?
- They must equal to their corresponding actual amounts, as household and businesses cannot be forced to do what they don't want to do.
- So, what makes desired saving equal to desired investment?

The Market for Loanable Funds (Cont'd)

- For the economy as a whole, desired saving must be equal to desired investment:

$$S = I$$

- This is achieved in the market of loanable funds.
 - You have seen how the buyers' desired quantity of ice cream is made equal to the sellers' desired quantity of ice cream in the ice cream market.
 - A similar process in the market for loanable funds makes desired saving equal to desired investment.

The Market for Loanable Funds (Cont'd)

- The **market for loanable funds** is the market in which
 - The **supply of loans** come from households with **savings**.
 - The **demand for loans** come from businesses (and households) that wish to spend for **investment**.
 - The price of loans reaches an equilibrium at which the supply of loans becomes equal to the demand for loans.
 - ▷ The process is not unlike what goes on in other markets, such as the market for ice cream.



Supply and Demand for Loanable Funds

- Financial markets work much like other markets in the economy.
- The equilibrium of the supply and demand for loanable funds determines the real interest rate.

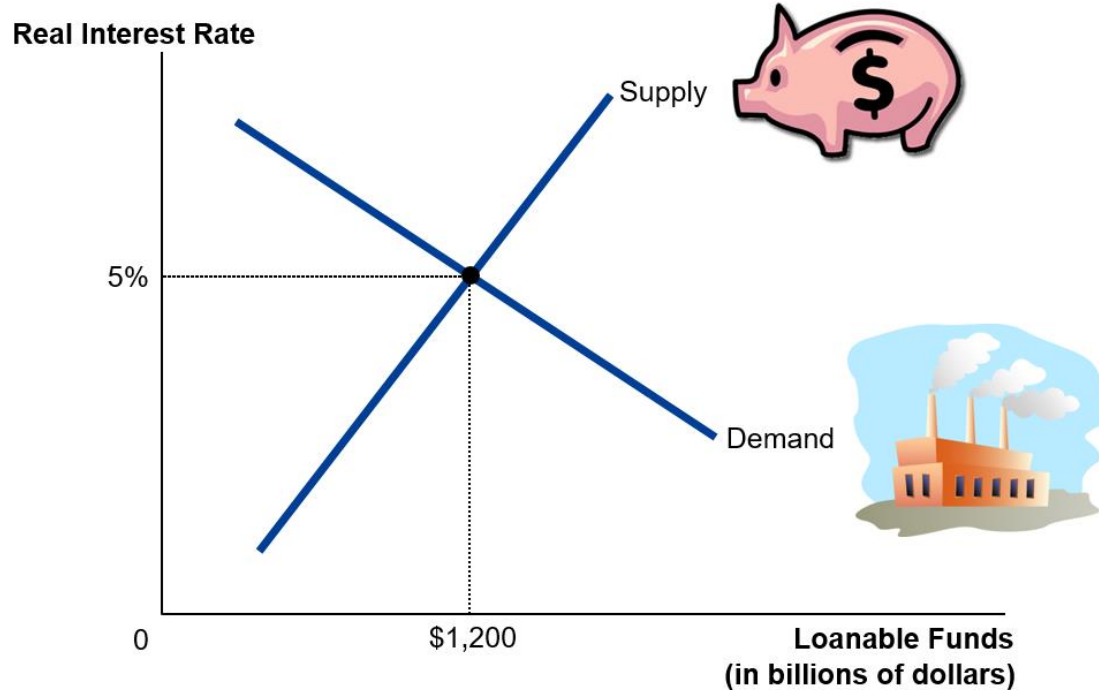


Supply and Demand for Loanable Funds (Cont'd)

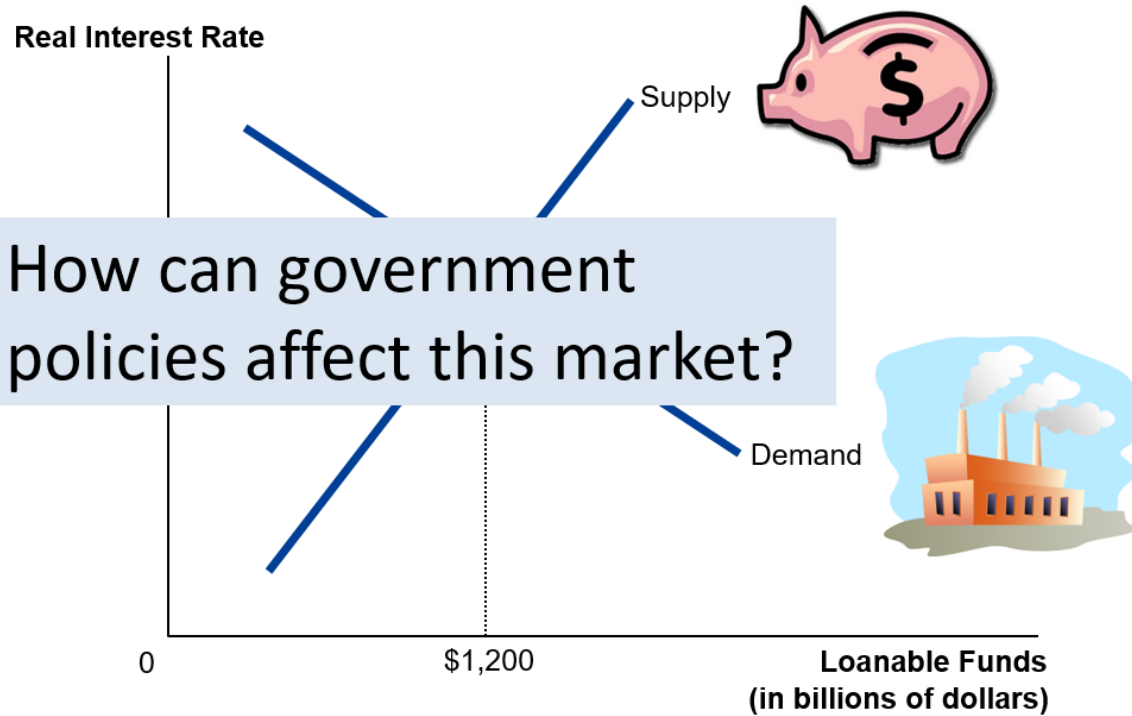
- The interest rate is the price of a loan.
 - It represents the amount that borrowers to take a loan and the amount that lenders receive to make a loan.
- More precisely, **the price of a loan is the real interest rate.**
 - The real interest rate is the inflation-adjusted interest rate.
 - **real interest rate = nominal interest rate - inflation rate**
 - ▷ See the topic “Measuring the Cost of Living” for a reminder



The Market for Loanable Funds (Cont'd)



The Market for Loanable Funds (Cont'd)



Supply and Demand for Loanable Funds (Cont'd)

- Government policies can affect saving and investment.
 - Taxes can affect saving
 - Taxes can affect investment
 - Government budgets can affect saving

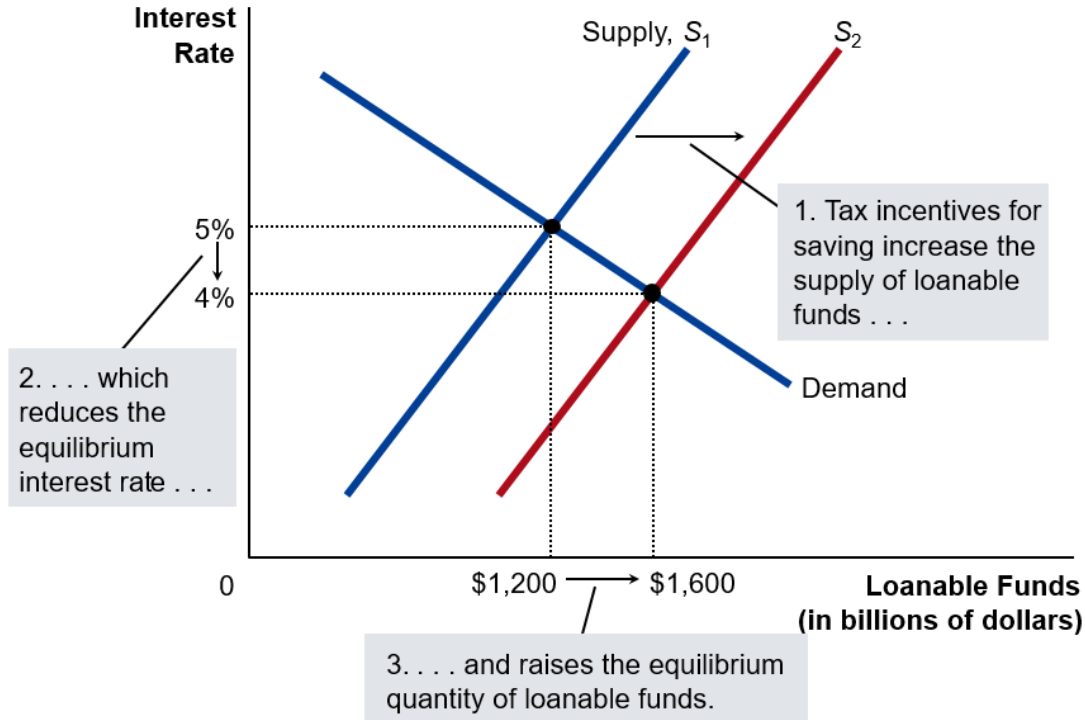
Policy 1: Saving Incentives

- The interest earned on savings is considered taxable income.
- Taxes on interest income substantially reduce the future payoff from current saving.
- As a result, such taxes reduce the incentive to save.

Policy 1: Saving Incentives (Cont'd)

- An income tax cut increases the incentive for households to save, at any given interest rate.
 - The supply curve of loanable funds shifts to the right.
 - The equilibrium **interest rate decreases**.
 - The quantity of **saving and investment increases**.

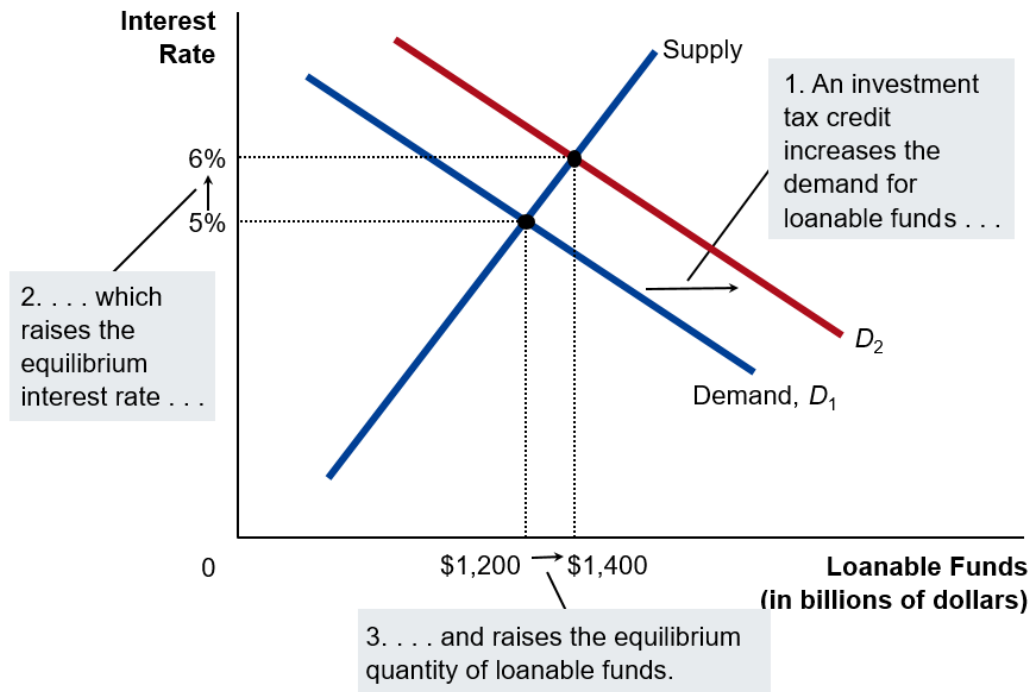
An Increase in the Supply of Loanable Funds



Investment Incentives

- Business pay taxes on their profits.
- The government may reduce a firm's profits tax on the condition that it spends more on investment.
- This is called an investment tax credit.
- **An investment tax credit** increases the incentive firms have to borrow for investment purposes. So, it
 - Shifts the demand curve for loanable funds to the right.
 - The **interest rate increases** and **saving and investment increase** as well.

An Increase in the Demand for Loanable Funds



Policy 3: Government Budget Deficits and Surpluses

- When the government spends more than it receives in tax revenues, $T - G < 0$.
 - the gap is called the budget deficit
 - The government must borrow money in the market for loanable funds to fill the gap
- The accumulation of past budget deficits is called the **government debt**.

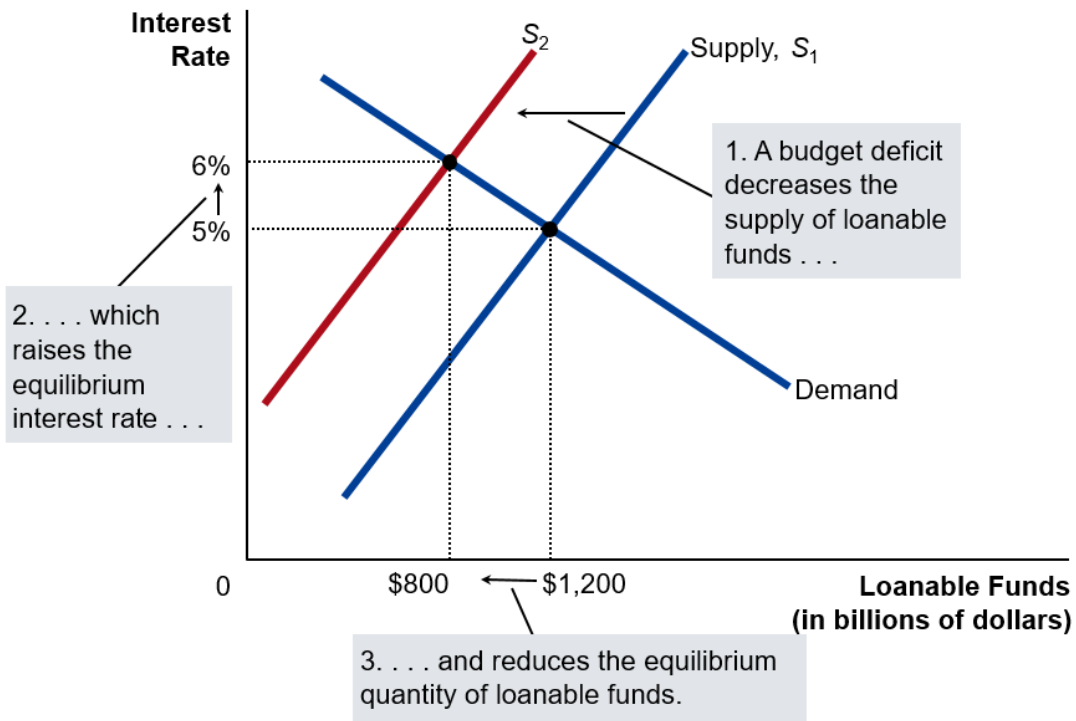
Policy 3 (Cont'd)

- Government borrowing to pay for its budget deficit reduces the supply of loanable funds available to pay for investment by households and firms (the private sector).
- This fall in investment is referred to as **crowding out**.
 - The budget deficit borrowing crowds out private borrowers who are trying to find loans for investment.

Policy 3 (Cont'd)

- An increase in the budget deficit decreases the supply of loanable funds.
 - The supply curve of loanable funds shifts to the left.
 - The interest rate increases.
 - Saving and investment decreases.

The Effect of a Government Budget Deficit



Policy 3 (Cont'd)

- Conversely, an increase in the budget surplus increases the supply of loanable funds, reduces the interest rate, and increases the quantity of saving and investment.

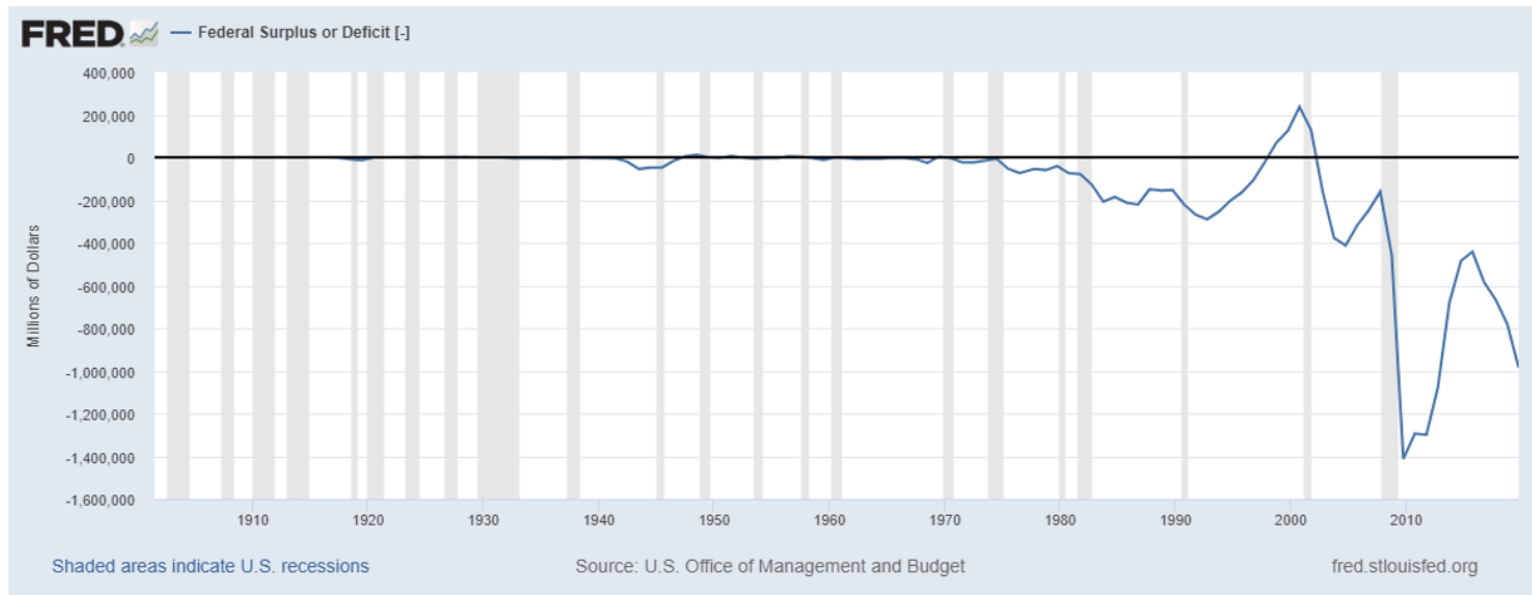
Question to Think About

- Should a nation's government try to change its levels of saving and investment?
- **There is NO clear answer.**
- More saving and investment is not always good for us.
 - While the future is important, so is the present.
 - While saving and investment improve our future standard of living, they reduce our current standard of living.

Question to Think About (Cont'd)

- The level of saving and investment that comes out of the interactions of savers and investors in the market for loanable fund is usually – though not always – just right.
- The government should intervene only when
 - It is clear that the market is likely to malfunction, and
 - The government is reasonably sure that it would be able to do a better job than the market.

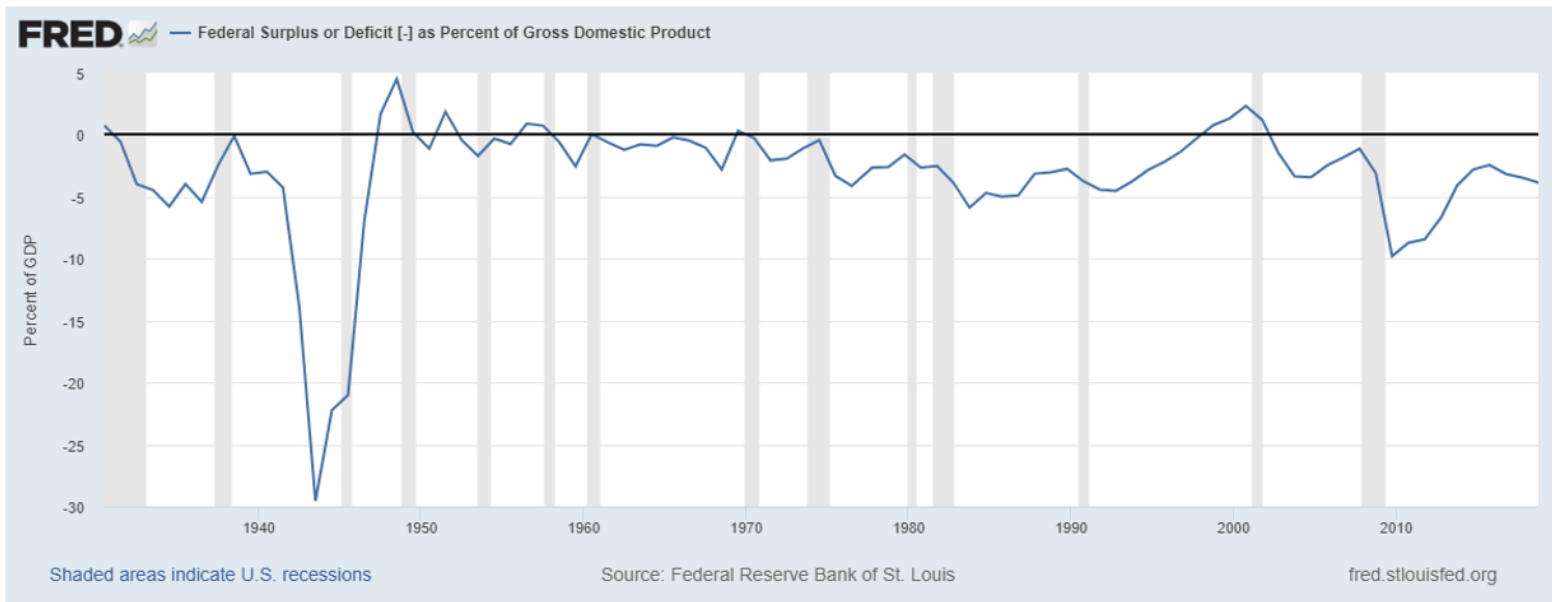
U.S. Federal Governments Surplus/Deficit



Source: <https://fred.stlouisfed.org/series/FYFSD>



U.S. Federal Government Surplus/Deficit (% of GDP)



Source: <https://fred.stlouisfed.org/series/FYFSDFYGDP>



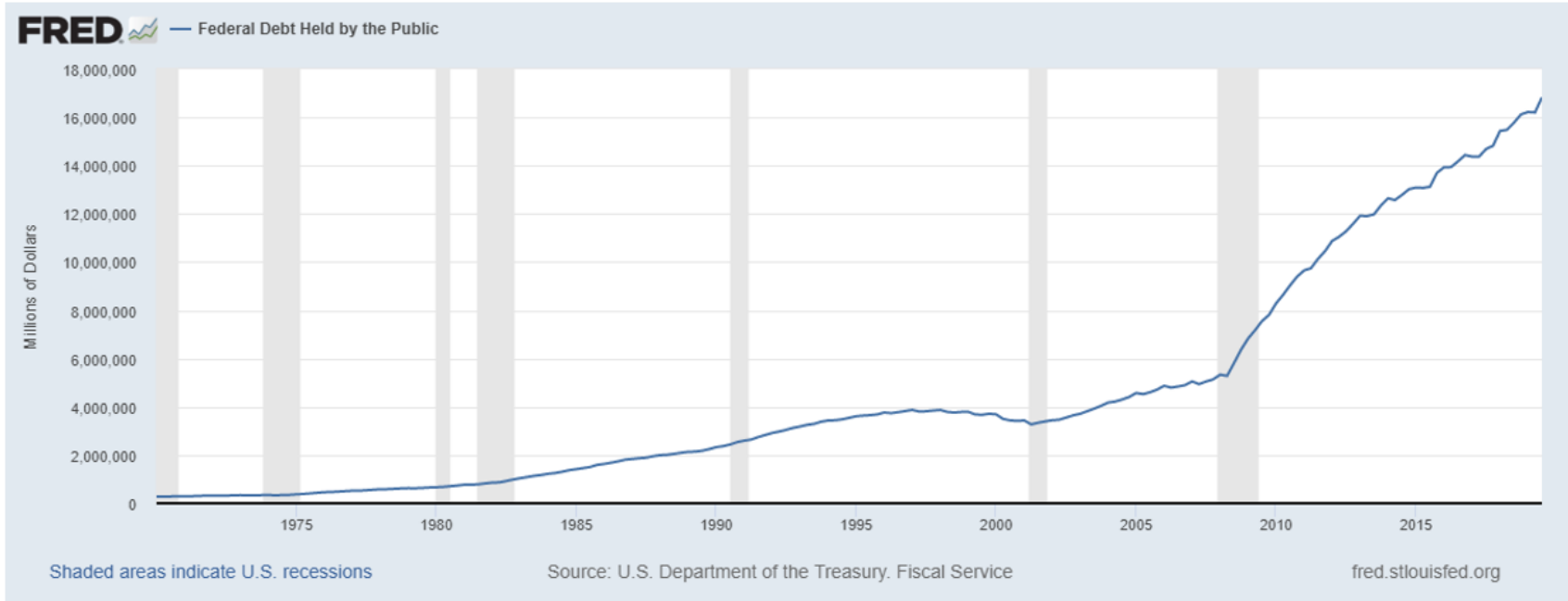
U.S. Government Debt as a Percentage of GDP, 1790-2012



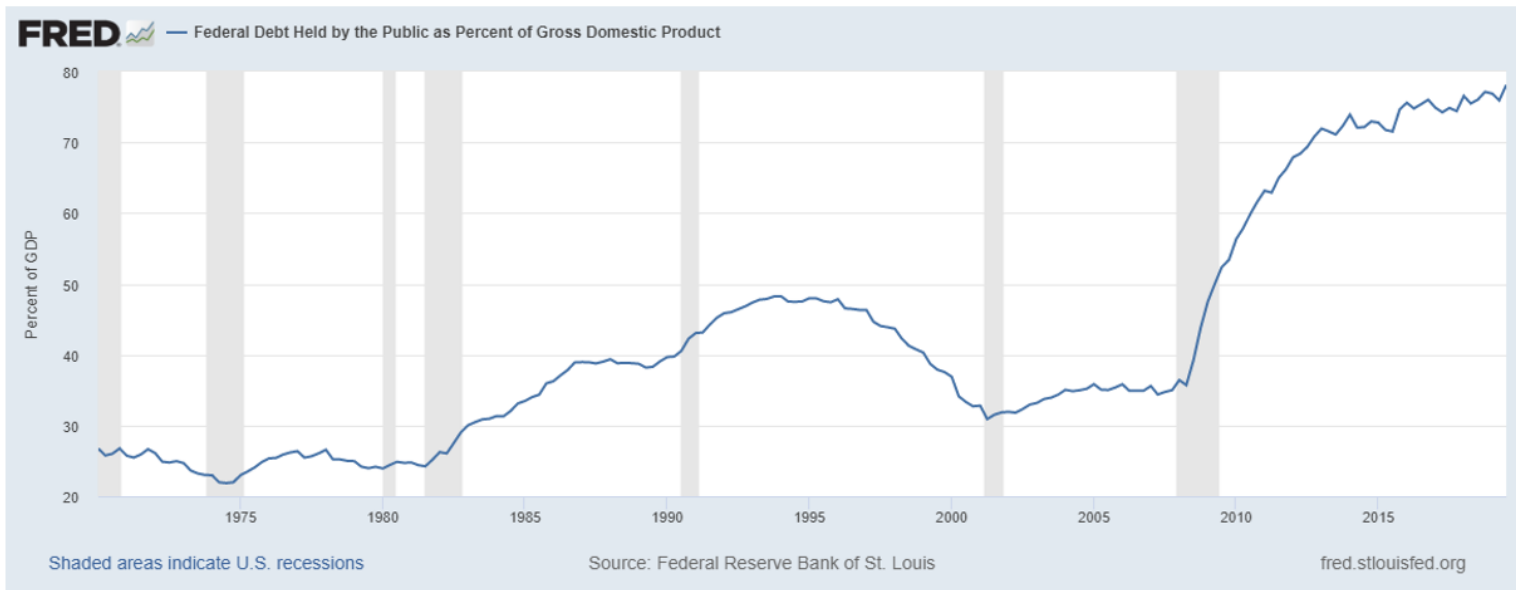
The debt of the U.S. federal government, expressed here as a percentage of GDP, has varied throughout history. Wartime spending is typically associated with substantial increases in government debt.

More recent data on next slide.

U.S. Federal Government Debt



U.S. Federal Government Debt (% of GDP)



Source: <https://fred.stlouisfed.org/series/FYGFQDQ188S>





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