Monetary Policy

ECO 120: Global Macroeconomics

Goals

- Specific Goals
  - Describe the Federal Reserve System and the tools they use to conduct monetary policy.
  - Identify factors that affect money demand.
  - Describe and illustrate how changes in money supply affect interest rates, inflation, and real GDP in the short run and long run.
  - Ultimate goal: Be able to evaluate an economy's performance and suggest appropriate monetary policy.
- Learning Objectives
  - LO1: Apply the supply and demand model to predict quantity and price outcomes of a number of different markets.
  - LO5: Use the model of aggregate demand and supply to evaluate the short-run and long-run impacts of fiscal and monetary policy on production, employment, and the price level.

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Reading and Exercises

- Supply and demand for money: Module 40
- Monetary Policy and AS/AD: Module 41
- **Canvas Quiz due Wednesday 11:59 PM**. Multiple-choice, 15 questions, unlimited attempts allowed, only best score counts
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What is money?

- Money is a commodity or token that is generally acceptable as a means of payment.
- **Fiat currency:** Currency with no inherent value
  - Today the U.S. dollar is a fiat currency.
  - In prisons cigarettes are sometimes used as money. Cigarettes have an inherent value.
  - From 1889-1932 and from 1946-1971 the U.S. would redeem dollars for gold (Gold Standard).
  - Since the late 1970s most world currencies are fiat currencies.
- Money has three important functions:
  - Medium of exchange
  - Unit of account
  - Store of value.
- **Legal tender:** Government recognized currency to be widely used for payments, and is accepted for payments to the government taxes, fees, payments for services, etc.

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Functions of money

- Medium of exchange: eliminate the need for a double coincidence of wants.
- Unit of account: an agreed measure for stating the relative prices of goods and services.
- Store of value:
  - Money can be held and used for later consumption.
  - Money is not unique in this aspect. Stamps, baseball cards, houses, even computers and TV's can be stores of value.
  - With inflation, the value of money falls. Therefore currencies that undergo hyper-inflation cannot meet this function.

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Official Measures of money

- Two primary forms of money: Currency and Deposits.
- Two measures of money called **M1** and **M2**
- M1: currency + demand deposits (eg: checkable deposits) + other liquid deposits (eg: savings accounts).
  - These are immediate means of payment
- M2: M1 + time deposits + money market mutual funds.
  - The additional items in M2 can *quickly* be converted into a means of payment.
- **Liquidity**: the property of an asset being quickly converted to a means of payment.

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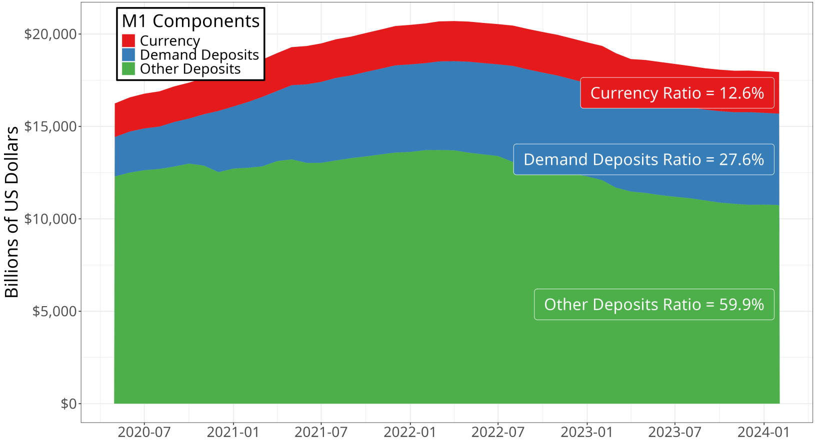
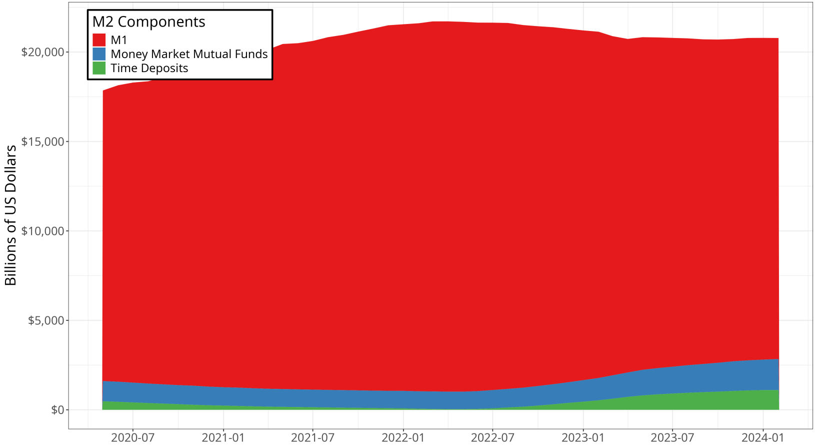
Official M1 Measures of Money



Official M2 Measure of Money



Forms of Payment

- Checks: Contracts to pay on demand deposits held in a bank or financial institution.
  - Checks are not money, but the balance of demand deposits is part of M1
- Debit cards: Look like credit cards but function as checks with greater speed, pay deposits held in a bank to a merchant
- Credit cards: Loans from a financial institution to pay to a merchant.
  - Credit cards aren't money, but each transaction *eventually* involves multiple transactions involving money.
  - When you pay with a credit card to don't give the merchant money, the credit card company does.
  - Then after some time, you give the credit card company money to pay back the loan.

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Modern Forms of Payment

- Payment apps such as Apply Pay, Google Pay, Venmo: Function like debit cards, connect your checking account information to the app.
- ACH transactions (Automatic Clearing House): Electronic transactions in and out of checking or savings accounts
- E-money such as Bitcoin. Is it money?
  - Electronically-defined asset with limited quantity
  - (1) Medium of exchange, (2) store of value, and (3) unit of account
  - Legal tender in El Salvador and Central African Republic
  - It's not a U.S. official measure of money
  - It's not something under direct control of U.S. central bank

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What is the Federal Reserve?

- The Federal Reserve, aka the **Fed**, is the United States's central bank.
- A central bank is a bank for the banks.
- Overnight band lending/borrowing: Financial institutions often use overnight loans to borrow funds from the Fed or from other banks in order to meet their depositors' demands for their money.
- Regulate the country's depository institutions
- Influence interest rates, inflation rates, real GDP, unemployment, etc.

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- The Federal Reserve, aka the **Fed**, is the United States's central bank.
- A central bank is a bank for the banks.
- Overnight band lending/borrowing: Financial institutions often use overnight loans to borrow funds from the Fed or from other banks in order to meet their depositors' demands for their money.
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Overnight Lending and Borrowing

- **Federal funds lending:** When financial institutions make overnight loans to each other (nothing to do with funds that are federal or from the Federal Reserve)
- **Federal funds rate:** The interest rate that financial institutions charge each other for overnight loans. As of April 16, 2024, the federal funds rate is in the range 5.25% to 5.50%.
  - The federal funds rate is a *private market rate*. The Fed *influences* it, but doesn't set it.
- **Discount window borrowing:** When financial institutions can borrow directly from the Federal Reserve (used to do it at a "Discount Window" at the Federal Reserve Bank of New York).
- **Discount rate:** Interest rate that the Fed charges banks for overnight loans (ironically not at a discount)
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Reserves and Interest on Reserves

- Banks hold a fraction of their total deposits **on reserve**, lend out the rest.
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- The Fed used to have *reserve requirements*: banks were required to keep a minimum percentage of deposits on reserve
- **Interest rate on reserve balances**: Since October 2008, the Fed pays banks interest on funds held in reserve accounts
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Structure of the Federal Reserve

- Board of governors.
  - Seven members appointed by the president and confirmed by the senate.
  - Each has a 14 year term. A new seat comes up every 2 years.
  - One chairperson with a 4 year renewable term.
- Federal Reserve Districts
  - Twelve Federal Reserve Districts, each with a Federal Reserve district bank.
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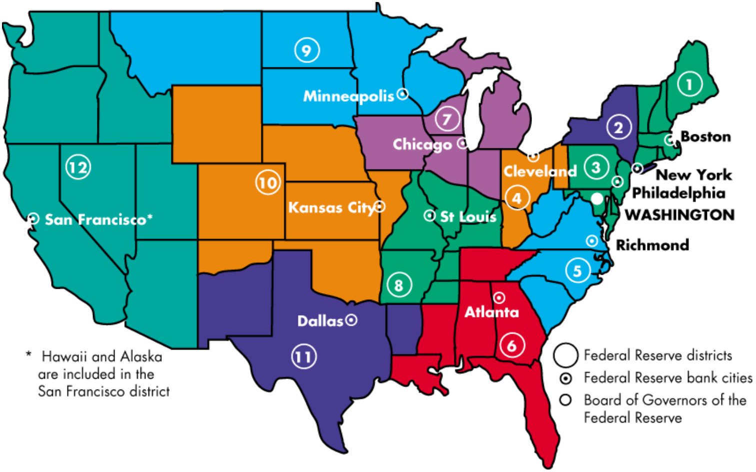

Federal Reserve Districts

Monetary Policy

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- Federal Reserve System Mandate: *Promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates*
- Primary monetary policy tool: Interest on reserve balances
  - Suppose Fed pays higher interest on reserve balances
  - Banks will charge higher rates for loans
  - Banks are willing to pay higher interest rates on deposits
  - Leads to a general increase in interest rates throughout the economy
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  - Fed owns U.S. government securities
  - What would happen if the Fed sold some of these securities?
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Real vs. nominal money

- **Nominal money**: quantity of money measured in dollars.
- **Real money**: real purchasing power of money.

$$\text{Real money} = \frac{\text{Nominal money}}{\text{Price level}}$$

- What should we use as a price for real money?
- When interest rate increases, opportunity cost of holding money increases, quantity of money demanded decreases.
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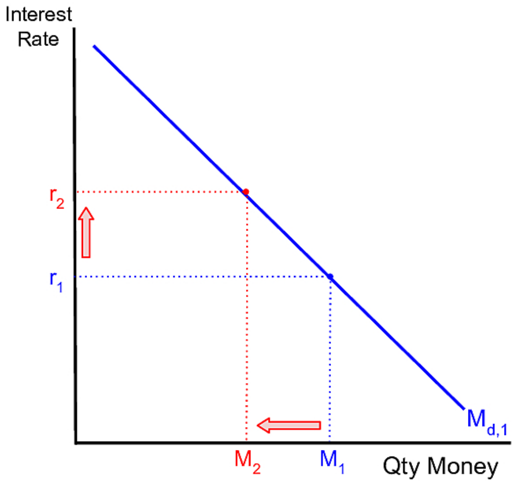
Real money demand



Determinants of Money Demand

- When something *besides the interest rate* affects money demand, this shifts the money demand curve.
- Real GDP: Increases in income lead to an increase, rightward shift, in the money demand curve.
- Financial innovations make holding on to money less necessary, leading to a decrease, leftward shift, in money demand.
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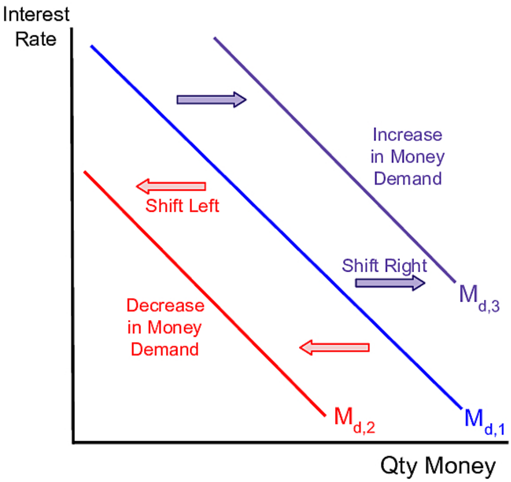
Shifts in money demand



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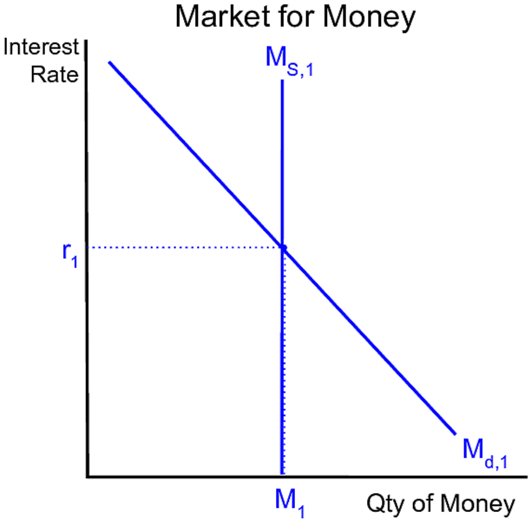
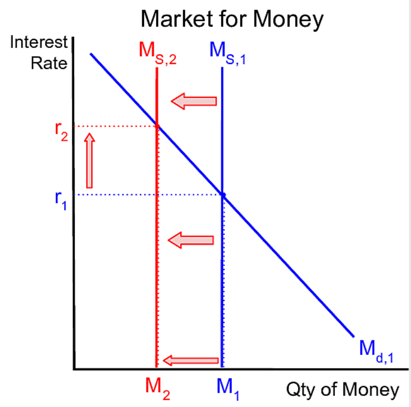


Monetary policy

Contractionary Monetary Policy

- A decrease in money supply
- Fed conducts an open market ________ of bonds
- Shifts money supply left
- Leads to an increase in the interest rate

Decrease in Money Supply



Monetary policy

Expansionary Monetary Policy

- An increase in money supply
- Fed conducts an open market ________ of bonds
- Shifts money supply right
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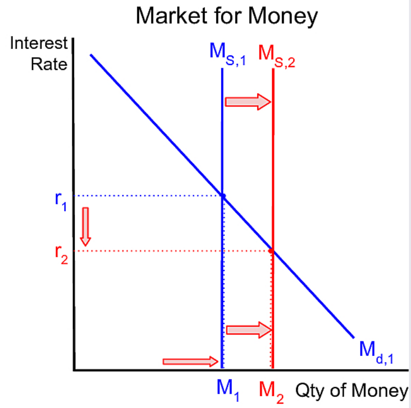
Increase in Money Supply



Ripple effects of the interest rate

Suppose the Fed decreases interest rates.

1. Investment increases.
2. Consumption increases.
3. Net exports increase.
    - What happens to demand for dollars vs. other currencies?
    - Lower return in the U.S., lower demand for dollars.
    - Value of the dollar falls.
        - U.S. residents buy fewer foreign goods $\Rightarrow$ decrease in imports.
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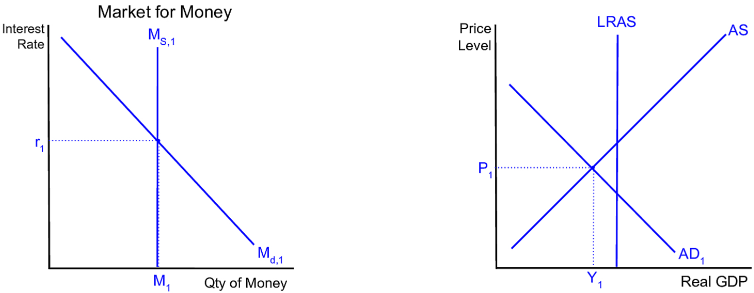
Monetary Policy to Counteract Recession

- Suppose the economy is in a recession with low inflation.



Monetary Policy to Counteract Recession

- Suppose the economy is in a recession with low inflation.
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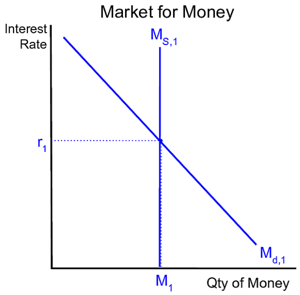

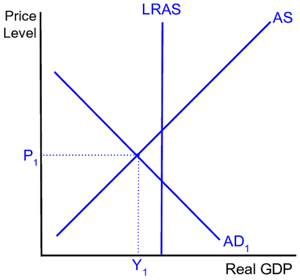

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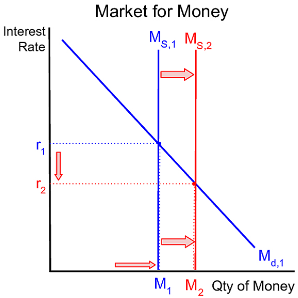
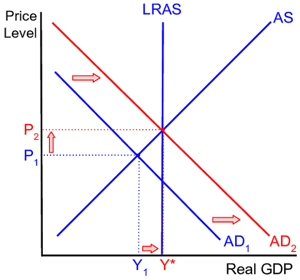
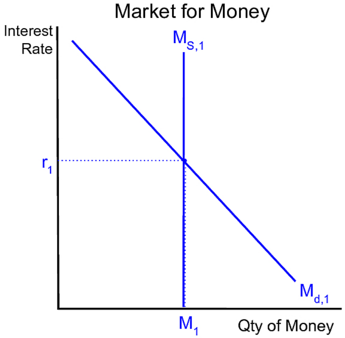
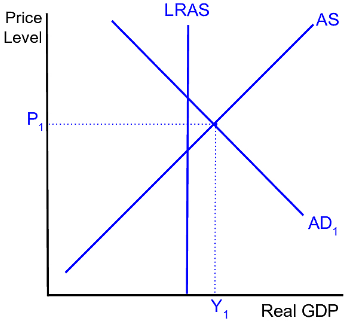




Controlling the Inflation Rate





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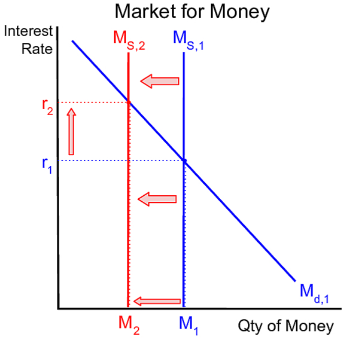

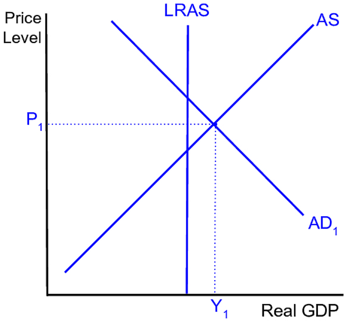

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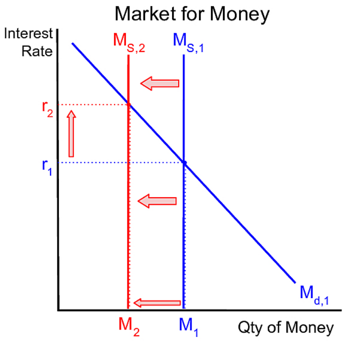
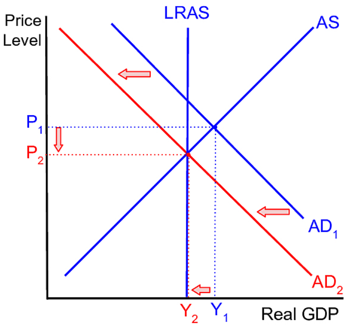
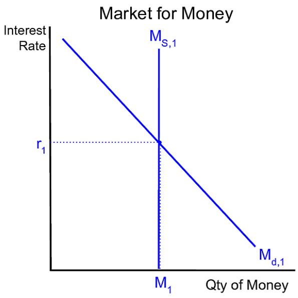
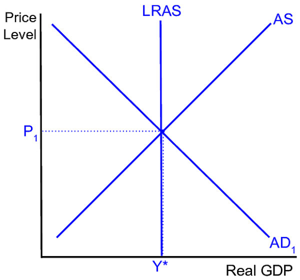




Impact of Financial innovation

- Banks improve online banking process.
- What effect does this type of financial innovation have on the money market and goods market?





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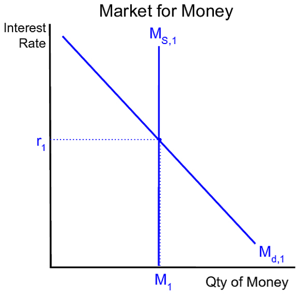

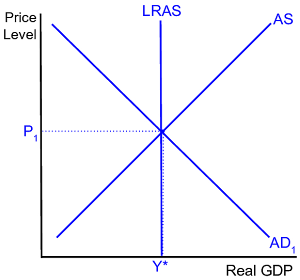

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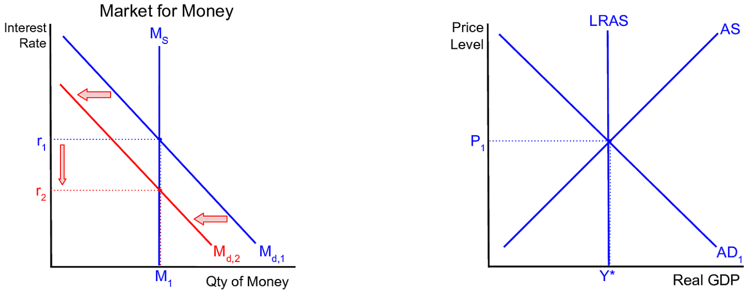

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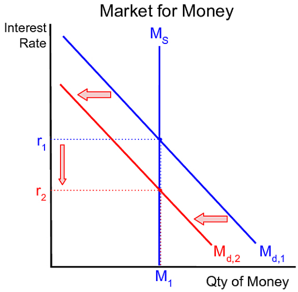

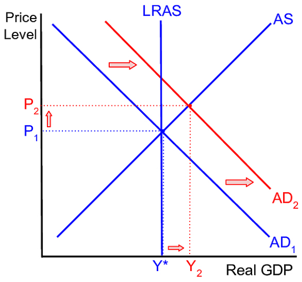

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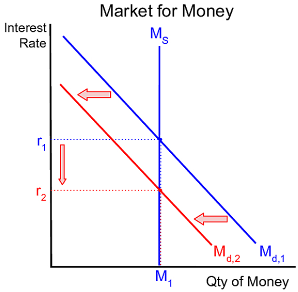

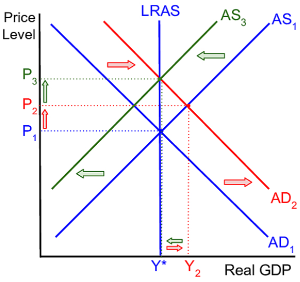

Reading and Exercises

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- **Canvas Quiz due Wednesday 11:59 PM**. Multiple-choice, 15 questions, unlimited attempts allowed, only best score counts
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