Aggregate Supply in the Short Run

• AS - relationship between the economy’s price level and
  
  – Assuming:
  
  • Technology is fixed.

• Labor & AS:
  
  – Labor is the most important resource because
  
  – Supply of labor depends on
  
  – Quantity of labor supplied depends on the price level
  
  – Wage contracts are negotiated based on

• Potential output and the natural rate of unemployment:
  
  – Firms and resource providers agree on prices based on
  
  – Potential output is the amount produced when there are no surprises about the price level.
  
  • Potential output =

  – Unemployment that occurs at the natural rate of output is called:

  – Cyclical unemployment =

• Actual price level is higher than expected:
  
  – Many prices are fixed in contracts,
  
  – Firm costs remain constant (fixed in contracts),
  
  – Firms have incentive to increase production in the short run.
  
  • SR =

• Actual price level is lower than expected:
  
  –

  – Costs fall because

• Short Run Aggregate Supply Curve:
  
  – We have just described the SRAS - relationship between the actual price level and real GDP supplied.
Short Run to Long Run

• Long run =
  – No surprises about the price level.

• Closing an expansionary gap:
  – Suppose the economy starts at equilibrium (pt a).
  – If AD turns out to be greater than expected, output exceeds potential =
    – Unemployment
  – In the LR, contracts are renegotiated based on the higher price level.
    • Result =
    • LR equilibrium =

• Closing a contractionary gap:
  – Suppose the economy starts at equilibrium (pt a).
  – If AD turns out to be less than expected, output falls short potential =
    – Unemployment
  – In the LR, contracts are renegotiated based on the lower price level.
    • Result =
    • LR equilibrium =

Shifts in the Aggregate Supply Curve

• LRAS =
  – Depends on:

• AS Increase:
  – A change in resources, technology, or rules of the game can affect potential output.
    • Gradual changes (increase in labor or capital)
      • Unexpected beneficial shocks (new technology or tax break)

• AS Decrease:
  – Adverse supply shocks (droughts or terrorist attacks)
    – Result =
Lecture Notes: Chapter 12 - Fiscal Policy

Theory of Fiscal Policy

• Fiscal Policy - Government purchases, transfer payments, taxes, and borrowing that affect macroeconomic variables
  – Examples:

• Fiscal Policy Tools:
  – Revenue and spending programs in the federal budget that automatically adjust with the ups and downs of the economy.
    – Example:

  – Deliberate manipulation of government purchases, transfer payments, or taxes to promote economic goals (full employment, price stability, and economic growth).
    – Example:

• Changes in Government Purchases:
  – Suppose federal policy makers decide to stimulate aggregate demand because unemployment is high by increasing gov’t purchases by $100 billion.

– This continues until e’ is reached.
– Government purchases multiplier:
  • Δ Real GDP demanded =
    • In our example,
      – Δ Real GDP demanded =
      – Δ Real GDP demanded =
      » Notice:

Including Aggregate Supply

• Discretionary fiscal policy to close a contractionary gap:
  – Suppose the economy is producing:
  – Output falls short of the natural rate,
  – Unemployment exceeds
  – History suggests that wages and resource prices are slow to adjust, so policy makers decide to increase AD just enough to return the economy to its potential output.
  • Expansionary fiscal policy =
The Evolution of Fiscal Policy

• Prior to the Great Depression
  – Public policy was shaped by classical economists who advocated laissez-faire.
  - No need for government intervention and fiscal deficits were considered immoral.

• The Great Depression and WW2
  – Unemployment
  – John Maynard Keynes argued that prices and wages were sticky and the market could not adjust quickly to return output to the natural rate.
  – Keynes believed that:
    • WW2 created a huge demand for goods and services purchased by gov’t.
    • Employment Act of 1946:

• From the Golden Age to Stagflation:
John F. Kennedy was the first president to propose a budget deficit to stimulate an economy experiencing a contractionary gap.

- Worked wonders -

- However,
  - The decrease in the SRAS causes prices to rise and unemployment to rise = Stagflation.

- Since 1990: From Deficits to Surpluses Back to Deficits:
  - President Clinton:
    - Result: Turned the deficit into a budget surplus
    - Budget surplus in 2000 =
  - President G.W. Bush:
    - Result: Deficit =
  - President Obama:
    - Result:

**Lectures Notes: Chapter 14 - Money and the Financial System**

**Money Analogy**

- Money is the grease that lubricates the wheels of market exchange.
- Money
- Too little leaves some parts creaking; too much gums up the works.

**The Evolution of Money**

- Before money there was barter
- Barter depends on a double coincidence of wants:
  - Barter is easy on a small scale, but is complicated in a market economy.
- As money flows in the economy, it facilitates production and trade:
  - Total production increases,

**Definition of Money:**

- Three Functions of Money:
  - 1. Anything that facilitates trade by being generally accepted for goods and services.
  - 2. Common unit for measuring value of goods and services.
  - 3. Anything that retains its purchasing power over time.

**Types of Money:**

- Money with intrinsic value
  - Examples:
  - Money without intrinsic value
This note is legal tender for all debt, public and private.

The Federal Reserve System

• When an economy relies on fiat money, some agency must be responsible for regulating the system.
  • – Oversee the banking system

• Organization of the Fed:
  • – Board of Governors
    • – Appointed by the President and confirmed by the Senate.
    • – 14 year terms
  • – The most important governor is the Chairman:
    • – Directs Fed staff, presides over board meetings,

• Fed System:
  • – Federal Reserve Board in Washington, D.C., and

• Jobs of the Fed:
    • – Monitor individual bank’s financial condition, and facilitate bank transactions by clearing checks.
    • – Bank’s bank
  • – Control the quantity of money available in the economy

• Monetary policy is decided by:

• FOMC
  • – Meet every __________ in Washington, D.C.
  • – Discuss condition of the economy and consider changes in money supply.
  • – FOMC is comprised of:

  • – FOMC can change money supply by Open Market Operations
    • – OMO
      • – OMO purchase =
      • – OMO sale =

Lecture Notes – Chapter 15 - Banking and the Money Supply

Money Aggregates

• Narrow Definition of Money:
  • – M1 =
    • – 60% of M1 is held in foreign countries

• Broader Definition of Money:
  • – M1 plus
  • – M2 =
How Banks Work:
• The behavior of banks can influence the quantity of deposits in the economy, and therefore the money supply.

Simple Case of 100% Reserve Banking:
– Assume:
– A bank opens only as a safe place for people to store their money.
– All deposits are kept:
– Because all deposits are held as reserves, this system is called 100% Reserve Banking.

• T-Account:

• With 100% reserve banking, banks hold all deposits in the vault, and do not influence money supply

Money Creation with Fractional-Reserve Banking:
– Leaving all the money in the vault is unnecessary
– Banks can lend some of it out, charge interest,
– Banking system in which banks hold only a fraction of deposits as reserves is called: Fractional-Reserve Banking.

• Reserve Ratio:
  – Determined by
• Suppose there is $100 in deposits, and the reserve ratio (RR) is 10%
  – Banks hold 10% of deposits in the vault,

• The creation of money does not stop after one bank:
  – The process of money creation goes on and on.
The Money Multiplier (M) is an easy way to calculate the total amount of money that banks can create:

- M will tell us:
  - M =
  - The Money Multiplier equals one divided by the reserve ratio.
  - In our example, the reserve ratio = 10%
  - M =
  - M =
  - To calculate Money Supply (M$) multiply the base (the amount of money we started with) by the multiplier:
    - M$ =
    - In our example,

Example #2: How much money can banks create with $500 and a reserve ratio of 5%?

Fed’s Tools of Monetary Control

- The Fed has three tools to influence the supply of money:
  - Regulations on the minimum amount of reserves that banks must hold against deposits.
  - The smaller the reserve requirement, the less money held in the vault, and the more banks can lend out
  - Example:
  - Banks borrow from the Fed when they are short on meeting their RR
  - Higher discount rates discourage banks from borrowing from the Fed, therefore

- Purchase and sale of government bonds by the Fed
  - OMO purchase -
  - OMO sale -

Problems Controlling the Money Supply

- The Fed’s control over money supply is:
  - The Fed cannot dictate
• Money in shoebox rather than in bank account.
  – The Fed cannot dictate
  • Banks sometimes hold excess reserves
**Since the Fed cannot control either,**
**BUT, they do have control over the**

How monetary policy actually works:

• Federal Funds Rate:
  — Interest rate

  — This is the short-term interest rate that the Fed targets when conducting OMO:
    • Expansionary Policy:
    • Restrictive Policy:

• Example: Expansionary Monetary Policy

— Step 1 (Happens under direct control of the Fed):
  • Fed buys
  • The Fed gives
  • The amount of $$ in the economy increases
  • This increases the amount of deposits at banks
  • Amount of reserves
  • Banks make more loans
  • Demand for federal funds
  • Federal Funds Rate

— Step 2 (Thus MUST happen for OMO to be successful):
  • Banks are more willing to make loans
  • Supply of loanable funds
  • Interest rates
  • Consumption and investment are now affected by Fed’s policy
    — When interest rates are lower, the cost of borrowing is relatively lower,