Section 6: Inflation, Unemployment, and Stabilization Policies

Module 30: Log-run implications of Fiscal Policy: Deficits and the Public Debt
THE MORTGAGE CRISIS STARTED BECAUSE PEOPLE SPENT LOTS AND LOTS OF MONEY THEY DIDN'T HAVE...

AND JUST ASSUMED EVERYTHING WOULD BE OKAY.

SO HOW IS THE GOVERNMENT GOING TO FIX IT?

APPEARENTLY THE VERY SAME WAY...

Copyright by Steve Kelley.
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 Federal Reserve Bank to stabilize the economy.
Module 30 focuses on Fiscal Policy.
• **A deficit** is the amount by which *annual* government spending exceeds tax revenues.

• Government Spending \((s)\) = Tax Revenue\((t)\) - Government Purchases \((g)\) - Government Transfers \((tr)\)
The **public / national debt** is the total accumulation of all past yearly deficits and surpluses.

– Some agencies of government hold some debt; thus one agency of government owes money to another.

– The rest of the debt is owed to investors (foreign and domestic), and other countries
In the past decade, foreign holdings have doubled to just around 50% of debt owned by the public, and over half of this is held by Asian countries.

- The reason seems to be that these countries are buying debt to keep their currencies from rising relative to the dollar.
Who owns the U.S. national debt

U.S. debt stood at $21.21 trillion at end of June

- **Federal Reserve:** $2.38 trillion (11.2%)
- **U.S. government:** $5.73 trillion (27%)
- **Foreign investors:** $6.21 trillion (29.3%)
- **U.S. investors:** $6.89 trillion (32.5%)

Source: U.S. Treasury
• **surplus** is the amount by which annual tax revenues exceed government expenditures.

  – In 2000, the budget surplus was $236.4 billion. By 2003, tax cuts, a recession, and new commitments for national defense and homeland security had turned the budget surpluses of 1998-2001 into a deficit of roughly $400 billion for fiscal year 2004.

  – In 2011, the budget deficit was over $1.5 Trillion
Contractionary Fiscal Policy (The BRAKE)
Laws that reduce inflation, decrease GDP
- Decrease Government Spending
- Tax Increases
- Combinations of the Two

Expansionary Fiscal Policy (The GAS)
Laws that reduce unemployment and increase GDP (Close a Recessionary Gap)
- Increase Government Spending
- Decrease Taxes on consumers
- Combinations of the Two
Problems With Fiscal Policy
Deficit Spending!!!!

- A Budget Deficit is when the government’s expenditures exceed its revenue for a fiscal year. The fiscal year for the government runs from Oct. 1\textsuperscript{st} to Sept. 30\textsuperscript{th}.
- The National Debt is the accumulation of all the budget deficits over time.
- If the Government increases spending without increasing taxes they will increase the annual deficit and the national debt.

Most economists agree that budget deficits are a necessary evil because forcing a balanced budget would not allow Congress to stimulate the economy.
United States National Debt
And the Presidents Responsible for It

Democrat
Republican

$14,000,000,000,000

$12,000,000,000,000

$10,000,000,000,000

$8,000,000,000,000

$6,000,000,000,000

$4,000,000,000,000

$2,000,000,000,000

$0

Debt

Viet Nam War

Gulf War

Iraq Occupation


Kennedy
Johnson
Nixon
Ford
Carter
Reagan
Bush
Clinton
Bush II

US Gov Estimates 2008-12

Data from Bern Eichenbaum and the US Government
The National Debt as a Percent of Gross Domestic Product
(Data through 2007 is from Bush’s whitehouse.gov)

Through
Feb. 27
2009

120%
110%
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%


Truman  Ike  Kennedy LBJ  Nixon Ford  Carter  Bush Reagan  Clinton  W. Bush  Obama

zFacts.com
• **Servicing the debt** requires taxing the general public to pay interest to bondholders.
  
  – This means that money is taken from those across the income or wealth distribution and paid to bond holders, who tend to be from the upper class

If a nation defaults on its debt it will have a hard time convincing future investors to purchase its bonds.
Additional Problems with Fiscal Policy

1. Problems of Timing
   - Recognition Lag - Congress must react to economic indicators before it’s too late
   - Administrative Lag - Congress takes time to pass legislation
   - Operational Lag - Spending/planning takes time to organize and execute (changing taxing is quicker)

2. Politically Motivated Policies
   - Politicians may use economically inappropriate policies to get reelected.
   - Ex: A senator promises more public works programs when there is already an inflationary gap.
3. Crowding-Out Effect

- Government spending might cause unintended effects that weaken the impact of the policy.
  Example:
  - We have a recessionary gap
  - Government creates new public library. (AD increases)
  - But consumers spend less on books (AD decreases)
  Another Example:
  - The government increases spending but must borrow the money (AD increases)
  - This increases the price for money (the interest rate).
  - Interest rates rise so Investment falls. (AD decrease)
  The government “crowds out” consumers and/or investors
4. Net Export Effect

International trade reduces the effectiveness of fiscal policies.

Example:

• We have a recessionary gap so the government spends to increase AD.
• The increase in AD causes an increase in price level and interest rates.
• U.S. goods are now more expensive and the US dollar appreciates...
• Foreign countries buy less. (Exports fall)
• Net Exports (Exports-Imports) falls, decreasing AD.
MODULE 31

MONETARY POLICY AND THE INTEREST RATE

OUR NATIONAL DEBT:
$20,636,128,220,110

YOUR Family share 372,440

THE NATIONAL DEBT CLOCK
Interest-Rate Effect
• When price level increases, lenders need to charge higher interest rates to get a REAL return on their loans.
• Higher interest rates discourage consumer spending and business investment.
  • Because you are less likely to take out loans to improve your business or home
The FED adjusts the money supply by changing any one of the following:

1. Changing Reserve Requirements (Ratios)
2. Lending Money to Banks & Thrifts
   • Discount Rate
3. Open Market Operations
   • Buying and selling Bonds
The FED is now chaired by Jerome Powell

• The chairman of the Federal Reserve is the public face of the nation's central bank.

• He:
  – Testifies before Congress
  – Makes public speeches
  – Is the most powerful member of the committee that effectively sets interest rates
  – He also presides over the seven-member Federal Reserve Board of Governors.
• Open Market Operations is when the FED buys or sells government bonds (securities).
• This is the most important and widely used monetary policy

To increase the Money supply, the FED should **BUY** government securities.

To decrease the Money supply, the FED should **SELL** government securities.

How are you going to remember?

**Buy-BIG** - Buying bonds increases money supply

**Sell-SMALL** - Selling bonds decreases money supply
• When the Fed buys bonds, it adds to bank reserves. This is called easy money, expansionary monetary policy, or quantitative easing.

– It is designed to increase excess reserves and the money supply, and ultimately reduce interest rates to stimulate the economy.
• The opposite of an expansionary policy is a tight money, restrictive, or contractionary monetary policy.

  – Tight money policies are designed to shrink income and employment, usually in the interest of fighting inflation.

  – The Fed brings about tight monetary policy by selling bonds, thereby pulling reserves from the financial system.
Monetary authorities around the world have tried an alternative to monetary rules by using the approach of **inflation targeting**.

This sets targets for the inflation rate, usually around 2% per year. In January, 2012 the Fed adopted this position as well.

If inflation exceeds the target, contractionary policy is employed; if inflation falls below the target, expansionary policy is used.
• Today, monetary authorities set a target interest rate and then use open market operations to adjust reserves and keep the federal funds rate near this level.

• The Fed’s interest target is the level that will keep the economy near potential GDP and/or keep inflationary pressures in check.
• Professor John Taylor of Stanford University found that the Fed tended to follow a general rule that has become known as the **Taylor rule** for federal funds targeting:

  federal funds target rate =

  \[1 + (1.5 \times \text{inflation rate}) + (0.5 \times \text{output gap})\]

  \{\text{Output gap is current GDP – Potential GDP}\}

Problem with the rule is that it has a “lag” and adjusts for past inflation but not future inflation
MODULE 32
MONEY, OUTPUT, AND PRICES IN THE LONG RUN
• Savers supply loanable funds to banks and other financial intermediaries.
  – The reward for not spending today is the interest received on savings, enabling people to spend more in the future.
  – The supply of funds to the loanable funds market is directly related to interest rates.
    • Because at higher rates of interest, savers are rewarded more and are willing to supply more funds.
• The demand for loanable funds comes from people who want to purchase goods and services, such as taking out a home mortgage, or starting a business.

• Firms are borrowers, too. Firms may want to invest in new plants, facilities, or research.
The money market (where monetary policy has its effect on the money supply) determines interest rates **only in the short run.**

**In the long run, interest rates are determined in the market for loanable funds.**

Suppose economy is currently in LR equilibrium. If the Fed were to conduct expansionary monetary policy, the interest rate would fall.

A lower interest rate would shift AD to the right. In the short run, real GDP would increase, but so would the aggregate price level.
Increases in the money supply initially lead to an increase in output, but in the long run increased nominal wages reduce SRAS and lead only to an increased price level.
Eventually nominal wages would rise in labor markets, shifting SRAS to the left. Long-run equilibrium would be established back at potential GDP and a higher price level.

So in the long run, expansionary monetary policy wouldn’t increase real GDP, it would only cause inflation.
Monetary Neutrality

• Changes in the money supply have no real effects on the economy.
• In the long run, the only effect of an increase in the money supply is to raise the aggregate price level by an equal percentage.
• Economists argue that money is neutral in the long run.
Money Neutrality
• In the short run, we have seen that an increase in the MS causes short-term interest rates to fall. But what happens in the long run?
• Causing higher prices and thus increasing interest rates
• In the long run, monetary neutrality insures that the interest rate won’t change after a change in the money supply.
Changes in the Money Supply and the Interest Rate in the Long Run
MODULE 33

TYPES OF INFLATION, DISINFLATION AND DEFLATION
Inflation

• The **price level** is the absolute level of a price index.

• Measures of the price level include:
  • Consumer Price Index (retail prices).
  • Producer Price Index (wholesale prices).
  • GDP Deflator (average price of all items in GDP).

• The rate of inflation is the annual rate of increase in the price level.
Definition of Terms

• **Disinflation**: A reduction in the rate of inflation. Note that an economy going through disinflation may still be facing inflation, but it will be at a declining rate.

• **Deflation**: A decline in overall prices throughout the economy. This is the opposite of inflation.
Your attitude toward inflation will depend in part on whether you live on a fixed income, whether you are a creditor or debtor, and whether you have properly anticipated inflation.

- Creditors may be harmed by unanticipated inflation because both the principal on loans and interest payments are usually fixed.
Debtors benefit from unanticipated inflation; the real value of their payments declines as their wages rise with inflation.

- Many homeowners in the 1970s and 1980s saw the value of their real estate rise from inflation while their mortgage payments remained fixed. At the same time, average incomes rose partly due to inflation.

- The result was that a smaller part of the typical family’s income was needed to pay the mortgage, and thus the real value of mortgages had declined.
Inflation Tax

- Is not an actual legal tax paid to a government
- "inflation tax" refers to the penalty for holding cash at a time of high inflation.
Inflation Tax

• When the government prints more money or reduces interest rates:
  – It floods the market with cash, which raises inflation in the long run.
  – If an investor is holding securities, real estate or other assets, the effect of inflation may be negligible.
  – If a person is holding cash, though, this cash is worth less after inflation has risen.
Seignorage

- An alternative way to look at this is to say that the right to print money is itself a source of revenue.
- Economists refer to the revenue generated by the government’s right to print money as seignorage. (The economic cost of printing money)
- Seignorage = An Inflation Tax
- The degree of decrease in the value of cash is termed the inflation tax for the way it punishes people who hold assets in cash, which tend to be lower- and middle-class wage earners.
DEMAND-PULL INFLATION
“Too many dollars chasing too few goods”

DEMAND PULLS UP PRICES!!!

- Demand increases but supply stays the same. What is the result?
  - A Shortage driving prices up
  - An overheated economy with excessive spending but same amount of goods.
COST-PUSH INFLATION

Higher production costs increase prices

A negative supply shock increases the costs of production and forces producers to increase prices.

Examples:

- Hurricane Katrina destroyed oil refineries and causes gas prices to go up. Companies that use gas increase their prices.
HYPER INFLATION

A very high and typically accelerating inflation.

It quickly erodes the real value of the local currency, as the prices of all goods increase.

This causes people to minimize their holdings in that currency as they usually switch to more stable foreign currencies, often the US Dollar.

Country and Time-
Zimbabwe, 2008
Annual Inflation Rate-
79,600,000,000%
Time for Prices to Double-
24.7 hours
Phillips Curve

• Lower unemployment tends to lead to higher periods of inflation

• Higher inflation tends to lead to lower unemployment.

THESE RULES ARE USUALLY REPRESENTED BY A GRAPH KNOWN AS THE PHILLIPS CURVE
The Short-Run Phillips Curve

When the unemployment rate is low, inflation is high.

When the unemployment rate is high, inflation is low.

Short-run Phillips curve, SRPC
When SRAS increases along with AD, both the unemployment and inflation rates fall. This is seen as a downward shift of the SRPC.

When SRAS decreases along the AD, both the unemployment and inflation rates rise. This is seen as an upward shift of the SRPC.
• Short-Run Phillips Curve

• Positive Supply Shock brings both lower inflation lower unemployment

• A Negative Supply Shock will bring higher inflation and higher unemployment
The Short-Run Phillips Curve and Supply Shocks

A negative supply shock shifts SRPC up.

A positive supply shock shifts SRPC down.
• Expected Inflation will directly affect the present inflation rate.

• What determines expected inflation?

• The expected rate of inflation is the rate that employers and workers expect in the near future.

• An increase in expected inflation shifts the short-run Phillips Curve upward.
The short run and long run effects of expansionary policies
Most macroeconomists believe that there is no long-run trade-off between lower unemployment rates and higher inflation rates.

That is, it is not possible to achieve lower unemployment in the long run by accepting higher inflation rates.
LONG RUN PHILLIPS CURVE

- **NAIRU**
- **LRPC**
- **Natural Rate Hypothesis**
- **Natural Rate = NAIRU**
• The unemployment rate at which inflation does not change over time—5% in the previous graph, is known as the non-accelerating inflation rate of unemployment, or NAIRU for short.

• Keeping the unemployment rate below the NAIRU leads to ever-accelerating inflation and cannot be maintained and therefore there is no long run tradeoff between unemployment and inflation.
DISINFLATION WILL EVENTUALLY BRING HIGH UNEMPLOYMENT
Expected Inflation and the Short-Run Phillips Curve

SRPC shifts up by the amount of the increase in expected inflation.
Some KEY TERMS

• Core CPI: CPI excluding food and energy prices

• Zero Bound: Nominal Interest Rates cannot go below zero

Liquidity Trap: When interest rates come close to zero then monetary policy will become ineffective since lenders will decrease desire to loan and savers will decrease desire to save in banks.
The Zero Bound in U.S. History
The Fisher Effect

• An increase in future expected inflation drives up the nominal interest rate, leaving the expected real interest the same.
Figure 34.6 The Fisher Effect
Ray and Anderson: Krugman's Macroeconomics for AP, First Edition
Copyright © 2011 by Worth Publishers
MODULES 35 & 36

HISTORY AND ALTERNATIVE VIEWS OF MACROECONOMICS
Prior to the Great Depression

• The prevailing thought of economists before the 1930s was that a *laissez faire* approach to the economy was the best approach for government.
  
  – Competitive markets for labor, products, and financial assets would lead to flexible wages, prices, and interest rates that would keep the economy humming along near full employment, with only a minor recession here and there.

  {the invisible hand theory}
• Before the Depression, government spending was roughly 10% of national output.

• Today, that figure has tripled to 30%.

• Thus representing the growing size of government
• Most of the changes in post-Depression economic thinking can be traced back to one book, *The General Theory of Employment, Interest and Money* by John Maynard Keynes, published in 1936.

  – In this book, Keynes focused his attention on the economy as a whole and on aggregate spending.
  – He emphasized income, and not interest rates, were the key to growing economy
• Keynes observed that as disposable income increases, consumption will increase, though not as fast as income.

• This approach to analyzing savings differs sharply from the Classical approach, which assumed the interest rate to be the principal determinant of saving.

• Remember that the **marginal propensity to consume** is the change in consumption associated with a given change in income. The **marginal propensity to save** is the change in saving associated with a given change in income.
Classical Versus Keynesian Macroeconomics
Keynes Lasting Contributions

• By the time of the Depression most economist had accepted the idea of SRAS
• Many felt that if it bounces back it does not benefit us in the long run to worry about it
• SRAD and SRAS matter especially during a downturn because prices and wages are sticky esp. during downturns.
Short-Run and Long-Run Effects of an Increase in the Money Supply

Increases in the money supply initially lead to an increase in output, but in the long run increased nominal wages reduce SRAS and lead only to an increased price level.
Milton Friedman
Milton Friedman

• Brought about a change in thinking by stressing that Monetary Policy and Monetary Supply needed to play a key role in managing the nations economy.

• This helped to increase importance of FED and decrease importance of fiscal policy
Velocity of Money

• This is the ratio of nominal GDP to the Money Supply. Essentially it is the number of times the average dollar bill is spent in a year.

\[ M \times V = P \times Y \]

• M = Money Supply  \quad P = \text{Aggregate Price Level}
• V = Velocity \quad Y = \text{Real GDP}
The Velocity of Money

Until 1980, velocity followed a smooth trend.

After 1980, velocity changed erratically.
### Five Key Questions About Macroeconomic Policy

<table>
<thead>
<tr>
<th>Question</th>
<th>Classical Macroeconomics</th>
<th>Keynesian Macroeconomics</th>
<th>Monetarism</th>
<th>Modern Consensus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is expansionary monetary policy helpful in fighting recessions?</td>
<td>No</td>
<td>Not very</td>
<td>Yes</td>
<td>Yes, except in special circumstances</td>
</tr>
<tr>
<td>Is expansionary fiscal policy effective in fighting recessions?</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Can monetary and/or fiscal policy reduce unemployment in the long run?</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Should fiscal policy be used in a discretionary way?</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No, except in special circumstances</td>
</tr>
<tr>
<td>Should monetary policy be used in a discretionary way?</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Still in dispute</td>
</tr>
</tbody>
</table>