

THE FED TODAY

History, Structure, Monetary Policy, Banking Supervision, Financial Services, and More!

LESSON FOUR:

THE FED'S ROLE IN MAKING AND SETTING MONETARY POLICY

OVERVIEW:

“The foundation of the Fed rests upon developing a sound monetary policy for our country, a monetary policy whose primary focus is on price stability,” states Charles Osgood in *The Fed Today* video. This lesson is specially designed in two parts. Part One discusses the Fed’s role in making monetary policy and introduces the concept of inflation, while Part Two focuses on how and why the Fed sets monetary policy.

PART ONE:

THE FED'S ROLE IN MAKING MONETARY POLICY

LESSON OVERVIEW:

This lesson focuses on price stability and inflation. Students discuss how to define inflation and analyze the relationship between the money supply and the price level using the Fisher Equation. Students then examine the harmful effects of inflation on the economy. Finally, small groups of students determine how business and consumer behavior changed during the 1970s when inflation had a negative impact on the nation’s economy.

STUDENT OBJECTIVES:

Students will:

- Define inflation and list its causes.
- Use the Fisher Equation to describe the relationship between the money supply and the price level.
- Identify at least three harmful effects of inflation.
- Understand how inflation can change the behavior of individuals and businesses.

TIME NEEDED:

One-two 50-minute class periods

MATERIALS:

- Classroom Visual #1: *Understanding Inflation* and Classroom Visual #2: *The Fisher Equation*
- Student Handout #1: *How Inflation Changes Individual and Business Decisions*
- Answer Key: *How Inflation Changes Individual and Business Decisions*
- Access to the FED101 website: <http://www.kc.frb.org/fed101/policy/> to learn more about monetary policy and economic indicators. Additional on-line activities available. (Optional)

TEACHER PREPARATION:

1. Review the content in the classroom visuals and student handouts.
2. Prepare copies of Student Handout #1 for five student groups.
3. Review FED101 website at <http://www.kc.frb.org/fed101/policy/> to learn more about monetary policy and economic indicators, and additional on-line activities. (Optional)

ACTIVITY:

Part One: How Inflation Affects the Economy

PROCEDURES:

1. Ask students if they know what inflation is and why it occurs. Ask them how they think inflation can affect individuals and businesses.
2. Project an overhead slide of Classroom Visual #1: *Understanding Inflation*. (Do not project the section about harmful effects of inflation until later.) Provide a general definition of inflation and discuss some of its causes. Show the connection between the money supply and the price level by demonstrating the Fisher Equation shown on Classroom Visual #2. Ask students to complete the example provided. Emphasize that effective monetary policy by the Fed can help control inflation and keep prices stable.
3. Return to Classroom Visual #1: *Understanding Inflation*. Ask students, "What's the effect of rapid increases in inflation?" Provide examples from the second half of Classroom Visual #1: *Understanding Inflation*.
4. Divide the class into five groups and distribute Student Handout #1: *How Inflation Changes Individual and Business Decisions*. Explain to students that inflation is often measured using the Consumer Price Index (CPI). The CPI is a measure of the overall price level for consumer goods. Changes in the CPI from year-to-year are an often-used measure of inflation. Changes in the components of the CPI also tell us about changes in the relative prices of key consumer goods.

Inflation was particularly severe in the 1970s and early 1980s. Using the information in Student Handout #1, describe how overall inflation—measured by the CPI-U Total column—and how prices for specific types of goods—see columns for Housing, Apparel, Food, Food Away from Home, Transportation, Fuel, and Gasoline—behaved over the years from 1971 to 1981. Emphasize that the overall CPI (CPI-U Total) rose at annual rates of 10 percent or faster in four years: 1974, 1979, 1980, and 1981. Explain to students that everyone is affected by inflation, but certain individuals, businesses, and governmental units are affected more than others.

5. Ask groups to read through the five categories of individuals and businesses that were especially affected by high inflation rates during the late 1970s and early 1980s. Explain to students that many individuals and businesses will change their spending and investing behavior in ways that may be costly to them and be harmful to the economy. Consumers and business will spend time and money to attempt to avoid the negative effects of inflation. One example of such behavior might be a restaurant owner who was forced to constantly reprint menus during the 1970s to keep pace with the rising prices for food items and wages. Investors may find that it is more difficult to estimate future costs and returns from projects.
6. Assign each of the five student groups an individual or business category. Ask them to discuss how that category's spending and investment decisions might have changed during the inflationary era of the 1970s.
7. Instruct each group to report its findings to the rest of the class. Students should choose a recorder and a spokesperson. Teachers may supplement the student presentations by referring to the Answer Key: *How Inflation Changes Individual and Business Decisions*.
8. **Teacher Summary:** Remind students that the Fed's primary goal of monetary policy is to minimize inflation. Ask for student participation to summarize the following main points:
 - Inflation is defined as a rise in the general level of prices over a sustained period of time.
 - Inflation can occur when short-term increases in the supply of money increase faster than the production of goods and services.
 - The Fisher Equation illustrates the principle that an increase in the supply of money is likely to increase the level of prices (with all other variables remaining the same).
 - Inflation can cause negative effects on the economy because of changes in consumer behavior and business decisions.

EXTENDING THE LESSON

Have students visit the FED101 website at <http://www.kc.frb.org/fed101/policy/>. Students can learn more about monetary policy and economic indicators, and take an on-line quiz.

DISCUSSION POINT:

Myth:

When the Fed prints money for banks it increases the national debt.

REALITY:

Federal Reserve Banks do not print money, they manage the inventory of the existing stock of currency. Money is printed by the Bureau of Printing and Engraving, an agency of the U.S. Treasury Department. Government debt is generated by government borrowing. The amount of borrowing, measured by the deficit, is not decided by the Fed. The government's debt and deficit are the result of the budgetary decisions of the Congress and President.

UNDERSTANDING INFLATION

DEFINITION AND CAUSES OF INFLATION:

- Inflation is defined as a rise in the general level of prices over a sustained period of time.
- Inflation can be caused by too many dollars chasing too few goods.
- Inflation can be caused by increased costs of making and selling goods.
- Inflation is often measured by the Consumer Price Index (CPI).

HARMFUL EFFECTS OF RAPID INFLATION:

- Inflation makes people worse off when their incomes don't rise as rapidly as the overall price level.
- Inflation may cause lenders to lose money because they may be repaid with dollars that have less value than when they made their loans.
- Inflation causes savers to lose money because a dollar they save today will have less value in the future when it is spent.
- Inflation makes it harder for businesses to plan, which may reduce investment in future projects.
- Inflation causes owners of financial assets to suffer when those assets don't increase in value as much as price levels rise.
- Interest rate-sensitive industries, such as mortgage lenders, may suffer as inflation drives up long-term interest rates, and Federal Reserve tightening raises short-term rates.
- At a national level, monetary policy, designed to slow inflation, typically results in lost output and employment in the short run.

THE FISHER EQUATION

Economists and the Fed use an equation that was created by Irving Fisher, a Yale economist, to show the relationship between changes in the supply of money and changes in the price level. This mathematical equation is called the *Equation of Exchange* or the *Fisher Equation*. The equation developed by Irving Fisher is:

$$MV=PQ \text{ (M times V equals P times Q)}$$

M = the amount of money in circulation

V = the velocity of circulation of that money over a year

P = the price level (the average of all prices of goods and services)

Q = the physical quantity of the final output of goods and services in one year

PQ = the total amount spent in an economy over a year

The Fisher Equation states that: **M** (the money supply) x **V** (the average number of times each monetary unit is spent per year on final goods and services) is identical to **P** (the price level) x **Q** (the physical quantity of the final output of goods and services in one year). $MV = PQ$, for short.

Since the velocity of money, **V**, is fairly stable, an increase in the supply of money, **M**, usually results in an increase in total spending. If **M** is increased in the short term, there is usually a corresponding increase in price level, **P**, assuming that **Q** (output) can't be increased in the short-term. **The end result is that a short-term increase in the money supply will cause an increase in the future price level.**

Since the Fed controls the amount of money in the economy, the Fisher Equation suggests a strong correlation between Federal Reserve monetary policy and the average level of prices, or inflation.

HOW THE FISHER EQUATION WORKS

Assign the following values to M, V, P, Q:

$$M = 100$$

$$V = 4$$

$$P = 10 \quad \text{Equation Check: } (100)(4) = (10)(40)$$

$$Q = 40$$

Now increase M (money supply):

Note: V and Q remain constant in short term:

$$M = 200$$

$$V = 4$$

$$P = ? \quad \text{Solve for P: } (200)(4) = (?)(40)$$

$$Q = 40 \quad ? = 20$$

The price level (P) doubled when the money supply (M) doubled.

HOW INFLATION CHANGES INDIVIDUAL AND BUSINESS DECISIONS

The Consumer Price Index (CPI) is the number used to calculate percentage changes in the average level of prices for a basket of goods and services purchased by a typical urban family. The categories below show some of the major components of consumer spending and indicate how the price level for the overall CPI and these components changed on an annual basis from 1971 to 1981. The data suggest that the overall inflation rate was at its highest level in 1980. On an annual basis for the components of the CPI, the fastest annual increase was recorded for gasoline in 1980. (By contrast, in 1971, the slowest annual increase was recorded for gasoline.)

CPI—Seasonally Adjusted Annual Percent Change by CPI Category

	CPI-U (total)	Housing	Apparel	Food	Food Away From Home	Transportation	Fuel	Gasoline
1971	4.2%	4.3%	3.2%	3.1%	5.2%	5.2%	6.8%	0.5%
1972	3.3%	3.9%	2.1%	4.1%	4.0%	1.2%	4.4%	1.3%
1973	6.3%	4.3%	3.7%	13.3%	7.8%	3.2%	5.7%	9.8%
1974	11.0%	11.3%	7.4%	13.7%	12.8%	11.2%	18.3%	35.4%
1975	9.1%	10.5%	4.5%	8.4%	9.3%	9.4%	11.7%	6.8%
1976	5.8%	6.2%	3.7%	3.1%	6.8%	9.9%	8.9%	4.2%
1977	6.5%	6.8%	4.5%	5.9%	7.6%	7.0%	10.7%	5.8%
1978	7.6%	8.8%	3.5%	9.8%	9.1%	4.7%	6.8%	4.3%
1979	11.3%	12.2%	4.4%	10.7%	11.2%	14.3%	10.8%	35.3%
1980	13.5%	15.7%	7.1%	8.5%	9.9%	17.8%	16.4%	39.0%
1981	10.4%	11.5%	4.8%	7.8%	9.0%	12.1%	14.6%	11.3%

INSTRUCTIONS:

Describe the potential changes in spending and investing for the following individuals and businesses during the inflationary 1970s. These changes made the cost of living and of doing business increase.

Individual/Business

Change in Behavior during Times of Inflation

Supermarket

Retiree on fixed income

Building Contractor

Saver

Mortgage lender

HOW INFLATION CHANGES INDIVIDUAL AND BUSINESS DECISIONS

Describe the potential changes in spending and investing for the following individuals and businesses during the inflationary 1970s. These changes made the cost of living and of doing business increase.

Individual/Business	Suggested Answers: Change in Behavior during Times of Inflation
Supermarket	During the periods of high inflation in the 1970s and early 1980s, many businesses were forced to make frequent changes to reflect rising prices. For supermarkets, such price changes were labor-intensive and costly. Before computer coding and scanning, stores had to manually place new labels on each item for each price change. In addition, promotional materials had a shorter life because the prices for individual items frequently changed.
Retiree on fixed income	Individuals on a fixed income lost purchasing power as a result of inflation. As the overall price level rose, individuals on fixed incomes found that, over time, their supply of dollars bought fewer goods and services. A retired person on a fixed income had reduced purchasing power during the inflationary period of the 1970s. A teacher, for example, who received a monthly retirement check of \$1,000 in January of 1979, would be able to purchase less than \$750 worth of goods and services by December 1981. This would have represented a 25 percent loss in purchasing power, which was impossible to recoup.
Building Contractor	Rapid inflation made it more difficult to make estimates and predict costs, which slowed future investment. Some building contractors facing rapid price increases in commodities such as lumber found it difficult to absorb the higher costs. The risks associated with new projects increased because of the added difficulty of estimating costs and prices in an inflationary environment.
Saver	Inflation reduced the value of savers' nest eggs. Their money lost purchasing power over time because the rate of inflation exceeded the return on their savings and investments.
Mortgage lender	Mortgage lenders were affected by inflation in the 1970s. Lenders held large loan portfolios of 30-year fixed-rate home mortgages, and many of these loans were made at low interest rates before the period of rapid inflation in 1973 and 1974. As inflation rose, these lenders found that the cost of business and the cost of deposits (interest rates) also increased, but the return on their mortgage loans remained constant. Ultimately this situation led to the creation of the variable rate mortgage loan to reduce the risk mortgage lenders faced from inflation.

