

Price Indexes and Inflation

Introduction and Description

At various points in the economic history of the United States, inflation has been a major economic problem. The high inflation rates of the late 1960s and 1970s led to the severe recession of the early 1980s. This experience has had a major impact on our economic policy today. Monetary policy under Alan Greenspan's chairmanship of the Federal Reserve System has revolved around controlling inflation. In this lesson, the measurement of prices is reviewed and the impact of unanticipated inflation is explored.

Activity 13 provides practice in creating a price index, changing the base year of a price index and examining the results of changing the base year. Activity 14 is a classroom game to help the students understand the effects of inflation on individuals. The students use their knowledge of the effects of unanticipated inflation to evaluate different scenarios, and they explain their analysis in Activity 15.

Objectives

1. Demonstrate how to change the base year of a price index.
2. Define anticipated versus unanticipated inflation.
3. Explain the impact of unanticipated inflation.

Time Required

Two class periods or 90 minutes

Materials

1. Activities 13, 14 and 15
2. Inflation Game cards

Procedure

1. Review the construction of a price index. Point out the current base year used in the government's reporting of macroeconomic statistics. You can find this information in the *Economic*

Report of the President, the *Federal Reserve Bulletin* or in several places on the Internet.

2. Have the students complete Activity 13 in class. Review the answers with the students.
3. Discuss the difference between *anticipated inflation* and *unanticipated inflation*. *Anticipated inflation* represents the level of inflation people expect to occur and have built into their economic decisions. *Unanticipated inflation* is the level of inflation that is not expected or is unforeseen.
4. Wage contracts and long-term loan contracts are usually the source for judging the expected inflation rate. *Unanticipated inflation* causes economic costs because people have not adjusted earnings and expenditures for this level of inflation. High levels of anticipated inflation also have economic costs. One economic cost of anticipated high inflation is transactions costs referred to as *boot-leather costs* because people run around trying to avoid losses from the declining value of money. A second economic cost is the distortion of incentives generated by the tax system. For example, anticipated inflation increases the dollar return on investments. As these dollar returns are taxed, the effective tax rate rises. The third economic cost is the result of the uncertainty of how and when policy makers will respond to the high level of inflation.
5. Play the Inflation Game: Royalty for a Day (Activity 14). This is a role-play. The instructions are on the activity Answer Key. You will need to prepare ahead of time cards for each speaker and scorecards for the audience if the students do not have their own books.
6. Have the students complete Activity 15 for homework. Review the answers with the students.

Price Indexes

There is more than one method for constructing a price index. The easiest to understand is probably the *weighted-average* method explained in this activity. This method compares the total cost of a fixed market basket of goods in different years. The total cost is weighted by multiplying the price of each item in the basket by the number of units of the item in the basket and then adding up all the prices. The cost of the basic market basket in the current year is then expressed as a percentage of the cost of the basic market basket in the base year using this formula:

$$\text{index number} = \frac{\text{current-year cost}}{\text{base-year cost}} \times 100$$

Multiplying by 100 converts the number so it is comparable to the base-year number. The base year always has an index number of 100 since the current-year cost and the base-year cost of the market basket are the same in the base year.

Part A

Constructing a Price Index

Using this information, let us now construct a price index. Fill in the blanks in Figure 13.1.



Figure 13.1

Constructing a Price Index

Basic Market Basket Item	No. of Units	Year 1		Year 2		Year 3	
		Price Per Unit	Cost of Market Basket	Price Per Unit	Cost of Market Basket	Price Per Unit	Cost of Market Basket
Cheese	2 lbs.	\$1.75	\$3.50	\$1.50	\$3.00	\$1.50	\$3.00
Blue Jeans	2 pair	12.00	24.00	15.50	31.00	20.00	40.00
Gasoline	10 gals.	1.25	12.50	1.60	16.00	2.70	27.00
Total Expenditure	—	—	\$40.00	—	\$50.00	—	\$70.00

- We now have the information needed to construct a price index. The first step is to pick a base year and apply the formula. If Year 1 is selected as the base year, the index number for Year 1 is $(\$40 / \$40) \times 100 = 100$. The index number for Year 2 is $(\$50 / \$40) \times 100 = 125$ and the index number for year 3 is $(\underline{\$70} / \$40) \times 100 = \underline{175}$.
- These index numbers indicate that there was a 25 percent increase in prices between Year 1 and Year 2.
 - What is the percentage increase between Year 1 and Year 3? 75%
 - What is the percentage increase between Year 2 and Year 3? 40% [(175 - 125) / 125]

Part B

Changing the Base Year

We need not have chosen Year 1 to be our base year. To determine if our choice of base year influenced the results, let's use Year 2 as our base year and recompute both the index numbers and the percentage changes between years. The first percentage change in prices has been done for you.



Figure 13.2

Changing the Base Year of a Price Index

Year	Index Numbers (Year 2 = Base)	Percentage Change in Prices (calculated by using changes in index numbers)	
Year 1	$(\$40 / \$50) \times 100 = 80$	Between Yr. 1 and Yr. 2	$[(100 - 80) / 80] \times 100 = 25\%$
Year 2	$(\$50 / \$50) \times 100 = 100$	Between Yr. 2 and Yr. 3	$[(140 - 100) / 100] \times 100 = 40\%$
Year 3	$(\$70 / \$50) \times 100 = 140$	Between Yr. 1 and Yr. 3	$[(140 - 80) / 80] \times 100 = 75\%$

- Do the index numbers change when the base year is changed from Year 1 to Year 2? Yes
- Does the percentage change in prices between years change when the base year is changed from Year 1 to Year 2? No Why or why not?
Only the base is changed. The relative price changes are the same.
- Would the price index numbers you have computed above change if a different set of expenditure patterns were selected for weighting? Yes Why?
The index numbers depend on the weights and the price changes.
- Under what conditions would each price index number computed above be a cost-of-living index?
To be a cost-of-living index, the number would have to include all major expenditure items consumers purchase. The quantity of the items purchased could not have changed over time, and the quality of the items could not have changed.
- Would each price index number computed above be accurate if the quality of the goods in the basic market basket changed? No Explain why.
Because the true weights would be different.
- How do you know if the quality of a product changes for the better? For the worse?
The product quality will have improved if the product yields more utility or satisfaction. The product will yield less satisfaction if the quality has deteriorated.

Inflation Game: Royalty for a Day

Introduction

Prices usually rise over a period of time. The same items you bought a few years ago may cost more now. For example, a restaurant menu lists its finest steak entrée at \$22; however, two years ago the same steak was only \$20. *Inflation* is the term used to describe an increase in the overall level of prices. It's an important concept to understand because it's discussed so frequently in the media: Price indexes and inflation measurements are reported almost daily in the financial pages, politicians constantly announce programs to control inflation and economists endlessly debate inflation's effects on economic growth.

In general, people don't like inflation because higher prices mean they can purchase less for the same income. However, inflation does not affect everyone in the same way. While many people are hurt by inflation, especially when it is unexpected, others may actually benefit.

This activity is designed to teach the students the effects of inflation on different segments of the population: Who is hurt by unanticipated inflation and who benefits?

Time Required

One class period

Overview of the Game

This activity is modeled after an ancient (1950s) television game show called "Queen for a Day," in which (women) contestants took turns describing their lives of tragedy, hardship and sorrow. After all had shared their misery, the sympathetic audience voted for the most deserving by applauding. An "applause meter" measured the sound. The winner was crowned "Queen for a Day" and presented with a robe, crown and many prizes. In this modern version, male and female economics students compete for the honor of "Royalty for a Day" by convincing the audience how much they are suffering because of inflation.

Materials

1. 12 individual contestant sheets describing the role of the contestant. These are set up as cards at the end of this activity.
2. Audience scorecards
3. Crown and robe for winning contestant (or other symbols of royalty)

Procedure

1. Arrange the classroom so the front of the room is the stage and the audience sits facing the stage.
2. Begin the activity by reviewing the concept of inflation and explaining the game's purpose using the Introduction and Overview.
3. The teacher performs the role of host, announcer and applause meter.
4. Select 12 students to be contestants and hand out role cards. Ask each student to study the role he or she is asked to play. The students may improvise as long as they communicate the basic message. The "contestants" will be called individually to "perform" their role in front of the audience. They will each have approximately 60 seconds to perform.

5. The remainder of the class participates as the audience. Hand each student an audience scorecard. (Audience scorecards are in Part A of the student book.) They are to complete the scorecard as each contestant performs. Tell the students to assume the inflation rate is 5 percent. Note that this is key to understanding the gain or hurt perspective of some contestants.
6. Begin the game. Call the contestants to the stage to perform one at a time. Allow approximately 60 seconds for each. Make sure the students in the audience have sufficient time between contestants to mark their scorecards.
7. At the end of all the contestants' performances, present a brief reminder of the purpose of the game and recap each of the 12 contestants by asking questions such as "Who has been most hurt by inflation?" "Who will be crowned 'Royalty for a Day?' Will it be Priscilla the homeowner or Mr. Mayor or Peter the storeowner? Or possibly it will be Theresa the union member at the auto factory or Jerry the real-estate speculator?" Then ask the students in the audience to review their scorecards individually and select the candidate they feel is most hurt by inflation.
8. Then read each contestant's name. Ask the students in the audience to rate each contestant with applause. The audience must applaud each contestant, but the louder the clapping, the greater the rating. *Suggestion for increased frivolity: Act as a human applause meter by placing your hands together above your head. Start in a sideways bent position (9:00) and gradually point straight up as applause increases (12:00). For truly thunderous applause, continue bending to the 3:00 position.*
9. The contestant with the greatest rating (loudest clapping) is crowned, robed and proclaimed "Royalty for a Day."
10. Conduct Part B. Do not get hung up on the exact position of each person. Instead, emphasize the reasoning behind why the students position the people as they do.
11. Conduct a post-game discussion:
 - (A) Using a blank audience scorecard on an overhead projector or on the board, have the students volunteer their answers about how inflation affected each contestant.
 - (B) "Inflation reduces the value of money." Have the students use the contestants as a basis for discussion. (Lucy, Elmer)
 - (C) "When people's incomes increase more slowly than the inflation rate, their purchasing power declines." Have the students use the contestants as a basis for discussion. (Mr. Sad Class)
 - (D) Discuss how the costs of inflation are different for different groups of people. "Unexpected inflation hurts savers and people on fixed incomes; it helps people who have borrowed money at a fixed rate of interest."
 - (E) Discuss how inflation imposes costs on people beyond its effects on wealth distribution because people devote resources to protect themselves from expected inflation. Have the students use the contestants as a basis for discussion. (cost-of-living allowances or COLAs, long-term contracts, fixed interest rates)
 - (F) Give a brief explanation about measuring inflation. "The consumer price index (CPI) is the most commonly used measure of price-level changes. It can be used to compare the price level in one year with price levels in earlier or later years."
 - (G) Give a brief explanation to the class about how "expectations of inflation may lead to higher interest rates."

Part A
Audience Scorecard

Contestant	Gain or Hurt by Inflation?	Reasoning
Priscilla <i>Homeowner / Worker</i>	Gain	<i>Wages increase above inflation rate. Could cause cost-push inflation</i>
Mayor <i>Government official</i>	Gain	<i>Higher tax receipts and able to repay debt / loan with lower purchasing-power dollars</i>
Peter <i>Store owner</i>	Hurt	<i>Costs are rising faster than revenue.</i>
Theresa <i>Auto worker / Union member</i>	Gain	<i>COLA keeps wages equal to inflation; pay raise results in wages above inflation rate. Cost-push inflation possible</i>
Jerry <i>Real-estate developer / Speculator</i>	Gain	<i>Money borrowed is repaid with dollars that have less purchasing power.</i>
Elmer <i>Retiree</i>	Hurt	<i>People on fixed income find the purchasing power of savings decreases.</i>
Mr. Sad Class <i>Teacher</i>	Hurt	<i>Wages are not keeping up with inflation.</i>
Lucy <i>High school senior</i>	Hurt	<i>Saved dollars have less purchasing power.</i>
Bernie <i>Bank president</i>	Hurt	<i>Bank loans are paid back with inflated dollars, which buy less.</i>
Helga <i>Retiree</i>	Hurt	<i>Saved dollars have less purchasing power.</i>
Jerome <i>Potential homeowner / Borrower</i>	Uncertain, depends on future price-level changes	<i>Will gain if real interest rate falls. Will be hurt if real interest rate rises.</i>
Lawrence <i>British businessowner</i>	Gain	<i>Signed contract that locked in lower price for an extended period of time.</i>

Part B

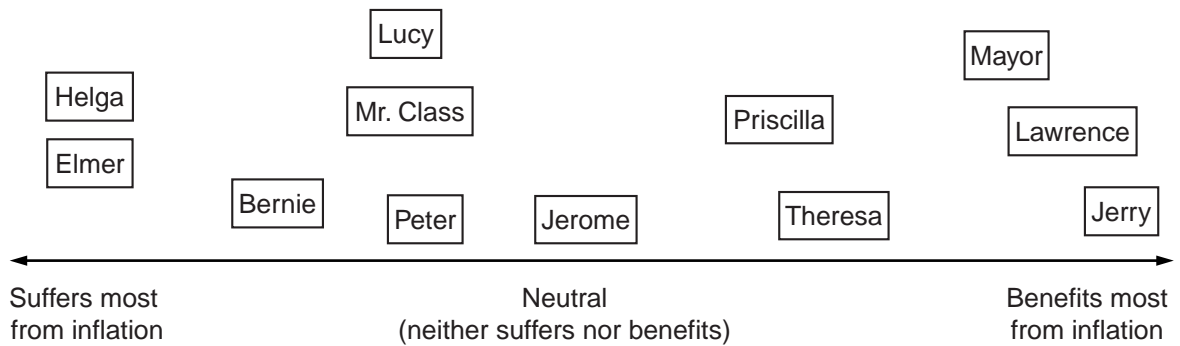
Spectrum Technique for Analyzing Contestants

Distribute the contestants along the spectrum, and explain why you think each should be located where you put him or her.



Figure 14.1

Spectrum Technique for Analyzing Contestants



Priscilla

Homeowner / Worker

I'm Priscilla, a homeowner. I used to think that this inflation stuff was just a bunch of media hype. All the stuff I have to buy to keep my house going is costing me more each year. Now my income is buying fewer goods and services than it used to. Let me give you an example. My lawnmower broke, and I had to buy a new one last week. The new one is just like the old one, except it cost 50 percent more than the old one did 10 years ago. And here's another thing: The state says my house is worth more because house prices in general have risen. How does that affect me? Because my house is worth more, my property taxes have gone up. Now I must pay more in taxes to live in the same house. That's not fair — I feel like I'm living in the poor house. But I got lucky at work. I told my boss that I deserved a 6 percent raise because of all this inflation going on. You know that I couldn't afford to live here anymore unless I got the raise. He moaned and groaned — you should have heard him — but he gave it to me. So I just went out and celebrated!

Mayor

Government official

Hello there. I'm the mayor. I know some people don't like inflation. I'm not crazy about it — makes me look bad to the voters. You know, when prices go up, everyone seems to blame the government. And I don't want to look bad to the voters because I need to get re-elected. But ssshhh. I'll tell you a secret. Overall, higher prices for everything people buy result in higher sales-tax receipts. And this gives the city more money to spend on things the voters want, like recreation programs and road improvements. Not only this, remember that skateboard park the town built and financed with municipal bonds? Well, inflation means that we'll pay back those bonds with cheaper dollars. So, inflation actually helps us a bit. I just hope those voters don't blame me for the higher prices.

Peter

Store owner

My name's Peter. I run an "Everything for a Buck" store. I advertise all kinds of wonderful treasures for \$1 or less. Catchy name, don't you think? I used to do really well, but I'm not earning as much profit as I used to. Lots of folks complainin' about inflation these days. And rightfully so; it's a MESS. The wholesale prices I pay for merchandise keep goin' up and up, but I gotta keep my prices at \$1 because that's my niche and why folks shop at my store. And it's not just the merchandise that costs me more, it's my employees, too. They threatened me with quitting if I didn't give them a 5 percent raise. Understand employees gotta make a livin', but so do I. Can't run the store without employees. My costs are going up, but I can't raise my prices — people won't pay over a buck for my merchandise. What can I do?

Theresa

Auto worker / Union member

My name is Theresa. I'm an auto worker at the car factory. My company is high tech and has automated our production line. I have an important job because the buttons I push determine how your car interior is made. Yep, one button selects the type of seats, another button determines the color of the seat fabric and the last button plops the seat on the car frame. It's a boring job but important because it must be done carefully. If I make a mistake, it's very expensive for the company to correct it after the car has left the factory. I'm proud to be part of the auto-workers' union because it really cares about its members. The union just negotiated a new five-year labor contract with a hefty raise *plus* an annual cost-of-living adjustment — what they call a COLA, and no, it's not a type of soft drink. Let me tell you why I am so excited about our new contract: My wages are guaranteed to keep up with the inflation rate, no matter what it is, and I get an annual raise on top of it. I'm a great supporter of my union!

Jerry**Real-estate developer / Speculator**

My name is Jerry. All this moaning and groaning about inflation. Just a bunch of worry for nothing. Let me tell you how I feel about inflation: I love it! That's right. You see, I'm a real-estate speculator. I buy houses and apartments and rent them out. I borrow as much money as I can to buy these places, so I don't have to tie up my own money. Then, thanks to inflation, the prices rise and I raise the rents. Then after a few years, I can sell the buildings at a handsome profit. The beauty is that the rents I charge cover my costs; and when I sell, I get to keep all the profits. The banks put up the money, but I get the profits. Pretty good deal, don't you think? And then I just start over and do it all again. I use some of my profits as down payment to borrow more money and buy more real estate. My business just keeps expanding and growing. Of course, if this inflation ever stops, I might be in a bit of a bind. But that will never happen — we always have inflation, right?

Elmer**Retiree**

My name is Elmer. Don't know how long I'm going to be able to last with this here inflation. When I was working, I put what I thought was a lot of money into a savings plan. I was self-employed, so no company pension. Thought I was being smart because my savings grew every year. Now I'm retired, and the value of my savings in terms of what it will buy is shrinking and shrinking. I'm withdrawing the same amount every month for living expenses, but it buys less and less. A few more years of inflation like this and I won't have anything left. That's a fine "How do you do!" Man works hard all of his life, scrimps and saves, eats all that hamburger instead of steak and look what happens. Soon I won't be able to afford even tomato soup!

Mr. Sad Class

Teacher

I'm Mr. Sad Class, a poor starving high school teacher. My classes are boring, my students hate me and my dog just had puppies — and they just bit me, one by one, all 12 of them. On top of all that, the school district board of trustees just voted to give teachers a 2 percent raise. They thought they were generous. BIG DEAL! Inflation is 5 percent. Guess who loses? Do you really think I got a raise? I think I'll give my students a really rotten exam.

Lucy

High school senior

I'm Lucy, a high school senior. I love all the senior activities, but they are costing me plenty. I've got to buy a dress for the prom and also pay for graduation announcements and the senior all-night party. My older sister told me exactly how much it cost her, so I made a budget and have been saving my money since I was a freshman. Last weekend I went looking for a prom dress. Wow! Every dress I saw would cost me more money than what my sister paid. I don't have that much money. Well, I know from my economics class that there's an opportunity cost associated with everything and that I have choices. I thought about the opportunity cost of not going to the prom and decided it was enormous. So I just took a counter job at the Hot Dog Haven in the mall. My manager makes me wear a yellow mustard-colored shirt, red ketchup-colored shorts and a hot-dog-shaped hat. I would die if any of my friends see me. But it's worth it because I'm going to the prom. Also, when I took the job, I forgot that some of my wages would be deducted each month to pay taxes. It's going to take me a little longer to get enough money for the dress.

Bernie

Bank president

I'm Bernie, the president of ABC Bank. Why the name ABC? Because ABC is listed first in the telephone directory, and everyone will see my financial institution first. Pretty clever, huh! I had to think of ways to fight those big corporate banks. My bank has a good reputation. People like to come to ABC because we give low fixed interest rate loans. Our competitors give only variable interest rate loans. Hey, just thought of something. With all this talk of inflation here, the loans ABC makes will be repaid in dollars that are worth less than the dollars originally loaned. Oh dear — we're going to lose money!!!!

Helga

Retiree

I'm Helga. I'm 80 years old. When my dear, darlin', wonderful, lovin' late husband passed away — bless his soul — I thought he'd left me enough money to live for the rest of my life. But now prices are out of sight. At the grocery store they charged me 79 cents for celery, and it was a dinky bunch of celery at that! I can remember when a bunch of celery cost only 5 cents. Now, those were the good old days. But what is going to happen to me if the prices keep goin' up? I may not be able to buy even a dinky bunch of celery. And the electric company and the phone company keep charging me more, yet I'm using less power, and hardly ever talk on the phone. What's a person like me goin' to do?

Jerome

Potential homeowner / Borrower

I'm Jerome, and I just went to the bank to get a loan for a new house. The loan officer told me I couldn't get a mortgage at a fixed rate of interest. I would have to get an adjustable rate. Said something about the bank can lend money only when the interest rates can be adjusted as inflation rates change. This is a big risk for me. I can afford monthly payments of only a certain amount, and I need to know exactly how much I'm going to pay before I sign the papers. The adjustable interest rate stuff is horrible — if the bank "adjusts" my payments above my limit, I might have to default and lose my house. I'm not too sure about all this.

Lawrence

British businessowner

I'm Lawrence, a British businessowner. My U.K. corporation negotiated a sweet deal: a five-year contract to purchase some computers from a U.S. computer company. The chaps from the U.S. were quite genteel. They allowed us to buy computers for the next five years at the current U.S. prices as long as we promised to buy a certain quantity. This means we've got price protection — they've guaranteed us the same price for five years, even if the company raises prices next year. Now mind you, the inflation rate has remained stable in Britain these past five years. So guess what? My company gained on this contract. Can't say I mind inflation in the U.S. I'll drink a cup of tea to that.

Who Is Hurt and Who Is Helped by Unanticipated Inflation?

In Questions 1 through 15, decide which people or groups are hurt by unanticipated inflation and which benefit from unanticipated inflation. Circle the correct response, and explain why you answered as you did.

H means the person or group is *hurt* by unanticipated inflation.

G means the person or group *gains* from unanticipated inflation.

U means it is *uncertain* if the person or group is affected by unanticipated inflation or if the effects are unclear.

1. Banks extend many fixed-rate loans.

H G U

Explain: *The money the bank receives for the loan repayment will be less in real terms (purchasing power) than the loan amount.*

2. A farmer buys machinery with a fixed-rate loan to be repaid over a 10-year period.

H G U

Explain: *Farmer makes payments that are less in real terms than the loan amount.*

3. Your family buys a new home with an adjustable-rate mortgage.

H G U

Explain: *It depends on what happens to the future interest rate relative to the inflation rate. If the real interest rate rises, the family will be hurt.*

4. Your savings from your summer job are in a savings account paying a fixed rate of interest.

H G U

Explain: *The return from savings will be worth less because of inflation and the fixed rate of return.*

5. A widow lives entirely on income from fixed-rate corporate bonds.

H G U

Explain: *The purchasing power of the income will be less as inflation continues to deflate the value of the dollar.*

6. A retired couple lives entirely on income from a pension the woman receives from her former employer.

H G (U)

Explain: *It depends on whether the pension has a cost-of-living adjustment. If it does not, then the purchasing power of the pension payment will be less as inflation continues.*

7. A retired man lives entirely on income from Social Security.

H G (U)

Explain: *It depends on whether the Social Security payments are fully indexed for inflation. If Social Security payments do not increase at the same rate as inflation, then the retired man is hurt by inflation because he cannot purchase the same amount of goods and services.*

8. A retired bank official lives entirely on income from stock dividends.

H G (U)

Explain: *It depends on the growth in stock dividends relative to the inflation rate. In general, stock dividends increase with inflation while bond interest rates are fixed; however, the increase does not have to match the inflation rate.*

9. The federal government has a \$5,000,000,000 debt.

H (G) U

Explain: *The government will repay the debt with money that has less purchasing power.*

10. A firm signs a contract to provide maintenance services at a fixed rate for the next five years.

(H) G U

Explain: *Revenue from contract will be worth less.*

11. A state government receives revenue mainly from a progressive income tax.

H G (U)

Explain: *It depends on how much tax revenue increases relative to inflation.*

12. A local government receives revenue mainly from fixed-rate license fees it charges businesses.

(H) G U

Explain: *Revenue will have a smaller purchasing power.*

13. Your friend rents an apartment with a three-year lease.

H (G) U

Explain: *Rent payments will be lower in real terms.*

14. A bank has loaned millions of dollars for home mortgages at a fixed rate of interest.

(H) G U

Explain: *Loan repayments will have less value or purchasing power.*

15. Parents are putting savings for their child's college education in a bank savings account.

H G (U)

Explain: *It depends on the return on the savings relative to the inflation rate.*

16. What conclusions can you draw about who is helped and who is hurt by unanticipated inflation?
*Individuals who receive fixed incomes are hurt by inflation — for example, lenders and savers.
People who make fixed payments gain — for example, borrowers.*

17. If you were certain that the inflation rate would be 10 percent a year for the next 10 years, how might your behavior change? Does your answer depend on who you are? Student? Worker?
If you are a borrower, you would borrow money to buy real assets particularly if you could borrow at interest rates that did not reflect the high (10 percent) inflation rate. If you are a lender, you would adjust interest rates by the anticipated inflation of 10 percent.

Unemployment

Introduction and Description

Unemployment is always a major economic issue. Economic history seems to show that there is a short-run trade-off between inflation and unemployment. Understanding the types of unemployment is essential to analyzing unemployment reduction policies.

Activity 16 has the students identify the unemployment situation and determine whether it represents frictional, cyclical or structural unemployment.

Objectives

1. Define *unemployment*, *employment*, *labor force* and *labor force participation rate*.
2. Explain the issues in measuring unemployment.
3. Define the types of unemployment.

Time Required

One class period or 45 minutes

Materials

1. Activity 16
2. Visuals 2.5 and 2.6

Procedure

1. Project Visual 2.5. Discuss the important points:
 - (A) Unemployment includes people who are *actively* looking for work. People who have stopped looking are not counted as unemployed.
 - (B) The labor force consists of the employed and the unemployed.
 - (C) The labor force participation rate is the proportion of the population over age 16 who are looking for work or who are working.

2. One issue associated with the definition of unemployment is *discouraged workers*: people who were looking for work but gave up because they didn't succeed in finding a job. The unemployment rate underestimates, by the number of discouraged workers, the number of people who would like to work.
3. A second issue is *underemployed* workers: people who are working part time but would like to work full time, or who hold a job that requires a lower skill level than they possess. These people are considered employed, but they could be more productive in a different job.
4. A third issue is that different groups within the economy experience vastly different rates of unemployment. The groups may be age cohorts, or race or ethnic categories. Knowing the distribution of unemployment by a particular characteristic is important in constructing policies to help the unemployed.
5. Project Visual 2.6. The important point is that there are different types of unemployment. The primary type that macroeconomic policy makers address is *cyclical* unemployment.

The other terms on the visual are *natural rate of unemployment* and *full employment*. The natural rate of unemployment is the level of unemployment when there is no cyclical unemployment; frictional and structural unemployment may exist at the natural rate of unemployment. The "full-employment" level of employment occurs when the economy is at the natural rate of unemployment.

6. Have the students complete Activity 16. Review the answers to Activity 16 with the students.

Types of Unemployment

There are three types of unemployment:

- *Frictional unemployment* includes people who are temporarily between jobs. They may have quit one job to find another, or they could be trying to find the best opportunity after graduating from high school or college.
- *Cyclical unemployment* includes people who are not working because firms do not need their labor due to a lack of demand or a downturn in the business cycle. For example, if people are not buying many goods and services, workers are laid off.
- *Structural unemployment* involves mismatches between job seekers and job openings. Unemployed people who lack skills or do not have sufficient education are structurally unemployed.

At full employment, we have frictional and structural unemployment, but cyclical unemployment would be zero. At full employment, the level of unemployment is called the *natural rate of unemployment*.

For each of the following situations, put the appropriate letter before the example.

F if it is an example of *frictional* unemployment.

C if it is an example of *cyclical* unemployment.

S if it is an example of *structural* unemployment.

- C 1. A computer programmer is laid off because of a recession.
- F 2. A literary editor leaves her job in New York to look for a new job in San Francisco.
- F 3. An unemployed college graduate is looking for his first job.
- S 4. Advances in technology make the assembly-line worker's job obsolete.
- C 5. Slumping sales lead to the cashier being laid off.
- F 6. An individual refuses to work for minimum wage.
- S 7. A high school graduate lacks the skills necessary for a particular job.
- C 8. Workers are laid off when the local manufacturing plant closes because the product made there isn't selling.
- S 9. A skilled glass blower becomes unemployed when a new machine does her job faster.