

## Objectives for Class 25 Inflation in the Twentieth Century

At the end of Class 25, you will be able to:

1. Define “**inflation**”.
2. Describe how the *Consumer Price Index (CPI)* is calculated.
3. Explain what is meant by a “**market basket**”.
4. Explain what is meant by the “**base year**”.
5. Explain what a *COLA* is.
6. Explain how the **Percentage Change** in the Consumer Price Index is calculated.
7. Explain the difference between “*Nominal Income*” and “*Real Income*”.
8. Briefly describe the history of inflation in the United States since 1960.
9. Explain what is meant by “*hyperinflation*”?
10. Name and explain the reasons that the Consumer Price Index overstates the change in the “cost of living”?
11. Explain how the **GDP Deflator** is calculated. And explain why it is the better measure of inflation?
12. Name the groups of people who “**win**” from unexpected inflation and the groups of people “**lose**”. In each case, explain why.
13. Define “*nominal interest rate*” and “*real interest rate*”.
14. Explain why inflation shifts resources from private to government activities.
15. Define “*bracket creep*”.
16. Explain why inflation may do each of the following (and thus **cause real GDP to grow slower than it otherwise would**):
  - a. reduce savings
  - b. increase borrowing for consumer goods
  - c. “mischannel” savings away from financial institutions
  - d. reduce business investment spending

### Class 25 Inflation in the Twentieth Century (latest revision October 2004)

We have encountered inflation several times in the first three chapters. *Inflation has been defined as a general increase in the prices of goods and services*. Notice the words “general increase”. An increase in the price of gasoline is not inflation. *Inflation requires that the prices of most goods and services are increasing*. In this chapter, we will consider inflation using the same approach that we used with unemployment. First, we will describe and evaluate the measures of inflation. Then, we will consider the effects of inflation and the reasons that inflation presents a serious problem for society.

#### 1. The Consumer Price Index (CPI)

There are two important measures of inflation – **the Consumer Price Index (CPI) and the GDP Deflator**. As you will see, for the purposes of this course, the GDP Deflator is the better measure of inflation. But for millions of people, the Consumer Price Index (CPI) is very important because they have a COLA tied to the Consumer

Price Index. *A COLA is a Cost-of-Living Adjustment. If you have one, your income is adjusted automatically to reflect the increase in prices, as measured by the increase in the Consumer Price Index (CPI). For example, if the Consumer Price Index (CPI) shows that prices increased by 2% and you have a COLA, you will receive an automatic 2% increase in your income. Certain government programs, such as Social Security, have COLAs. Many workers also have them through their contracts with employers. Because the Consumer Price Index (CPI) affects the incomes of millions of people, let us begin by examining it.*

*The Consumer Price Index (CPI)* is calculated by the Department of Labor of the federal government once every month. It measures the change in the prices of a given **market basket** of goods and services. There are over 200 goods and services in this “market basket”. The “market basket” includes goods and services that are likely to be bought by urban, middle class consumers. The government determined those goods and services by having a sample of people keep a diary of their purchases over the period 1982 to 1984. Therefore, 1982 to 1984 is called the **base year**. *The Consumer Price Index compares the amount you would pay to buy the goods and services included in the “market basket” today to the amount you would have paid to buy the same goods and services in the base year.* Let us illustrate this calculation with an example. Assume that there are only two goods: A and B. In the 1982 to 1984 base year, consumers bought 10 of A at a price of \$10 each and 20 of B at a price of \$5 each. Therefore, people spent \$100 on A and \$100 on B – or \$200 in total to buy the market basket in 1982 to 1984. Now assume that, in 2004, the price of A is \$20 and the price of B is \$10. *The Consumer Price Index asks the question: how much would people have to pay in 2004 to buy the same goods and services as they bought in 1982 to 1984 (that is, 10 of A and 20 of B).* Notice that it is not concerned with the amount of A or B that people actually did buy in 2004. If people bought the same 10 of A but paid the 2004 price of \$20 each, they would have spent \$200 on A. If they bought the same 20 of B but paid the 2004 price of \$10 each, they would have spent \$200 on B. In total, they would have spent \$400 (\$200 + \$200) to buy the “market basket”. **This \$400 spent is then divided by the \$200 spent in the base year.** The result equals 2. **This result (2) is then multiplied by 100 so that it is in percentage terms.** So, we say that the Consumer Price Index (CPI) for 2004 is 200. **200% means that the prices doubled between 1982 to 1984 and 2004.** Now assume that, in 2005, the price of A rises to \$22 and the price of B rises to \$11. What is the Consumer Price Index (CPI) for 2005? The answer is 220, calculated as follows:

$$\frac{(10) (\$22) + (20) (\$11)}{(10) (\$10) + (20) (\$ 5)} = \frac{(\$220) + (\$220)}{(\$100) + (\$100)} = \frac{\$440}{\$200} = 2.2 \times 100 = 220$$

If the Consumer Price Index is 220 in 2004 and 200 in 2003, by what percent did it rise in the year 2004? The answer is 10%.

$$\frac{(220 - 200)}{200} = \frac{20}{200} = 10\%$$

If you had a COLA, you would have received an automatic 10% raise in 2004. Stop at this point and be sure you can do each of these calculations.

Suppose you had an income of \$100,000 in 2004 and an income of \$110,000 in 2005. What happened to your **real income** in 2005? *Remember that the word “real” means “adjusted for inflation”.* Your **nominal income** increased by 10% (from \$100,000 to \$110,000). (*“Nominal” just means “name”.*) But because prices rose by 10% as well, your real income did not change at all. With \$110,000 of income in 2005, you could buy the same goods and services that you could have bought with \$100,000 of income in 2004. You are no better off.

### Test Your Understanding

1. Assume there are three goods in the economy: A, B, and C.

	Quantity <sub>1982</sub>	Quantity <sub>2004</sub>	Price <sub>1982</sub>	Price <sub>2004</sub>
A	10	15	\$1	\$3
B	5	10	\$3	\$4
C	20	20	\$5	\$10

Using this data, calculate the **Consumer Price Index (CPI)** for 2004. Assume that A, B, and C are all consumer goods and that the Base Year is 1982.

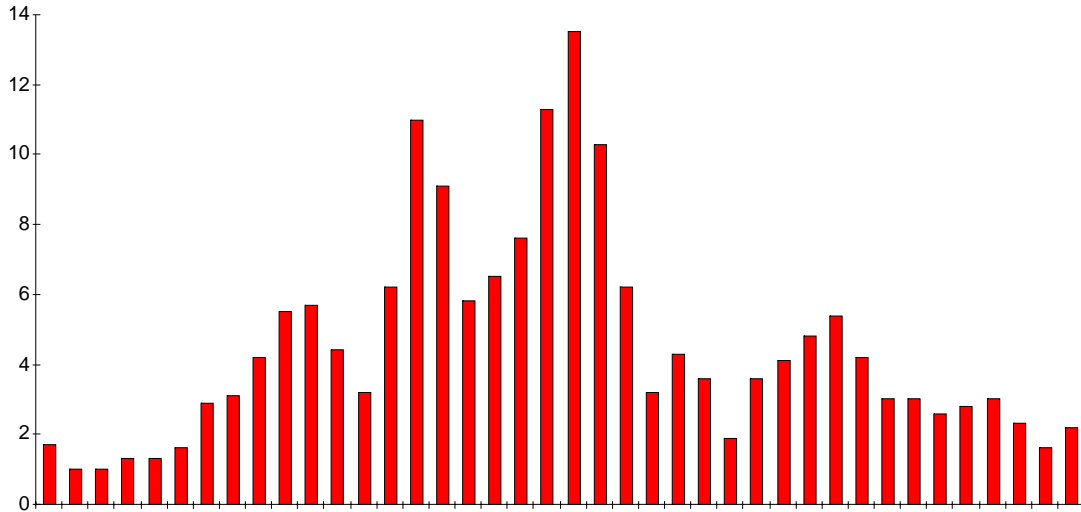
2. Assume that you have a **COLA** tied to the Consumer Price Index (CPI). In 1982, you earned \$15,000. Using the answer to question 1, how much would you need to be earning in 2004 to have the same purchasing power as you had in 1982?

3. In 1979, the Consumer Price Index (CPI) was 72.6. In 1980, the CPI was 82.4. What was the **percentage increase** in the Consumer Price Index (CPI) in 1980?

## 2. A Brief History of Inflation Since 1960

Using the Consumer Price Index (CPI), let us examine the history of inflation over the past forty years. **Notice that inflation rates were low until the late 1960s.** Then, they increased considerably. **The period from the late 1960s to the early 1980s was a period of high inflation.** After 1981, inflation rates fell dramatically so that **the enormous inflation of 1980 and 1981 was basically gone by 1983.** Since then, inflation rates in the United States have been low. This means that prices have been rising slowly. Notice, however, that there is no year since 1960 during which prices actually fell.

Inflation Rates 1960-2000



As we noted, rates of inflation were high in the 1970s and early 1980s. But do not confuse this with *“hyperinflation”*. *Hyperinflation refers to inflation rates that are extremely high*. As a rule of thumb, for hyperinflation to occur, prices must rise at least 200% per year. In the United States, this has only happened once --- in the American South during the Civil War. But there have been hyperinflations in several Latin American countries, in Israel, in China and Hungary after World War II, and in Germany after World War I. Perhaps you have seen the pictures of Germans in 1923 bringing wheelbarrows full of cash to the store to buy a loaf of bread? Prices were rising so fast that people were demanding to be paid daily and even hourly.

### 3. Evaluation of the Consumer Price Index

How accurately does the Consumer Price Index (CPI) measure the increase in the cost of living for a typical consumer? Since so many people’s incomes depend on the change in prices reported by the Consumer Price Index, this is an important question. **The answer is that the Consumer Price Index overstated the change in the actual cost of living**. It has done so for three reasons. **First, the market basket was fixed. The index measures the prices of the same goods month after month.** But you and I do not buy the same goods month after month. *As relative prices change, you and I tend to substitute products that are relatively cheaper for those that are more expensive.* Assume for example, that the price of gasoline was low in the 1982 to 1984 period. When the price is low, you and I might use a large amount of gasoline. This large amount of gasoline would then be part of the market basket. The government would assume that we buy this amount of gasoline month after month. But when gasoline became more expensive, you and I are more likely to own cars that get very good gasoline mileage; therefore we buy less gasoline. We are not worse off. But the calculation of the Consumer Price Index did not consider this substitution. **Second, the government used to take its survey of consumer prices at the same stores month after month.** But you and I do not shop at the same stores. As prices rise, we may be

more likely to shop at Mervyns or Wal-Mart and less likely to shop at Nordstroms or Nieman-Marcus. The calculation of the Consumer Price Index does not consider this substitution either. Since 1995, the government has attempted to remedy these two defects by shifting to what is called a “*chain weighted index*”. We will not be concerned with the details of this index here. **But third, and most importantly, the calculation of the Consumer Price Index does not consider quality changes very accurately.** For example, a computer today may cost \$1,500 while a computer in the 1982 to 1984 period may have cost \$1,000. The Consumer Price Index would treat this price increase as inflation. But of course, it is not inflation. Today’s computer sells for a higher price because it is enormously better. Paying more for a better product is not inflation. In fact, measured in terms of its power, today’s computer is much cheaper than the one that existed in 1982 to 1984. The same argument can be made for today’s automobiles, televisions, health services, and so forth. **For these three reasons, a government commission concluded that the Consumer Price Index overstated the increase in the cost of living by more than one percentage point.** This means that, if the Consumer Price Index shows that prices rose by 2%, the cost of living actually rose by less than 1%. **This is important as it means that people who received COLAs had been receiving increases in their income that were greater than necessary.** Since several government programs have COLAs, the government has been spending more than it needed to in order to maintain the cost of living of the recipients of its benefits.

#### 4. The GDP Deflator

Our discussion has focused on the Consumer Price Index because it is so important to so many people. But, as noted earlier, in this course, we will not use the Consumer Price Index. We will not use it because it is limited to the prices of certain consumer goods and services. The prices of a diamond necklace, a computer bought by a business, or a tank bought by the government are not included. In this course, we will want to evaluate the changes in the prices of **all** products. Therefore, we will use the GDP Deflator. ***To calculate the GDP Deflator, we take the Nominal Gross Domestic Product and divide by the Real Gross Domestic Product (and then multiply by 100).*** So for example, in 2003, the Nominal Gross Domestic Product was \$11,107 billion. This means that people actually spent \$11,107 billion buying all of the final goods and services that they actually bought in 2003. The Real Gross Domestic Product was \$10,493 billion. *This means that, had people bought the same goods and services they actually bought in 2003 but paid the prices of the base year (2000), they would have spent \$10,493 billion.* The difference between the two numbers (\$11,107 billion and \$10,493 billion) is due to the change in prices that actually occurred between 2001 and 2003. This is what we are trying to measure. When we take \$11,107 billion and divide by \$10,493 billion (and multiply by 100), we get 105.88. This means that between 2000 and 2003, prices as measured by the GDP Deflator rose by 5.88%.

**There are three points to notice about the GDP Deflator. First, notice that it does not have a fixed market basket.** Each year, we are measuring the changes in the prices of all of the goods and services that people actually bought this year. The “market basket” of goods and services whose prices are being evaluated changes from year to year. **Second, the base year is different from that of the CPI.** The Consumer Price Index

uses a base year of 1982 to 1984 while the GDP Deflator uses a base year of 1996.

**Third, and most importantly, the GDP Deflator measures changes in the prices of ALL goods and services that are produced in the United States. The Consumer Price Index is limited to measuring only certain consumer goods.** This point is the reason we shall focus on the GDP Deflator throughout the rest of this course.

### Test Your Understanding

1. Assume there are three goods in the economy:

	Quantity <sub>1996</sub>	Quantity <sub>2004</sub>	Price <sub>1996</sub>	Price <sub>2004</sub>
A	10	15	\$1	\$3
B	5	10	\$2	\$6
C	20	20	\$5	\$15

Using this data, calculate the **GDP Deflator** for 2004.

2. For 1999, the **Consumer Price Index (CPI)** actually shows a rise in prices of 2.2% while the **GDP Deflator** shows a rise in prices of 1.5%. How do you explain the difference in these two measures of inflation in the same year?

## 5. Effects of Inflation: “Winners” and “Losers”

If inflation is not expected, it can generate “winners” and “losers”. **This means that some people become richer as a result of unexpected inflation while others become poorer.** Some of those affected by inflation include debtors, creditors (savers), homeowners, wage earners, and the government. Let us begin by looking at debtors and creditors.

**Debtors** are people who borrow money while **creditors** are people who lend money. Assume that Mary lends Linda \$100 today, at a time of no inflation. They agree that Linda will pay the loan back in exactly one year. They also agree that Linda should pay an interest rate of 5%. Therefore, one year from today, Linda will pay Mary \$105. The loan is made. Beginning tomorrow and as a surprise to everyone, prices start to rise. Over the course of the year, prices rise 5%. Next year, Linda pays Mary \$105. What did Mary really receive? The answer is zero. The \$105 that Mary will receive next year will buy no more than the \$100 did today. Mary is no better off. And Linda has had the use of the \$100 for one year at no real cost. Linda is a “winner” from unexpected inflation while Mary is a “loser”. **In general, when inflation is unexpected, debtors “win” and creditors “lose”.** Notice that it is important that the inflation is unexpected. If the inflation had been expected, Mary would not have settled for an interest rate of 5%. Instead Mary would have required 10% interest --- 5% to cover the inflation and 5% for herself. Indeed, many lenders now require a **variable rate of interest** so that, if prices rise, the interest rate they receive will rise as well.

In this example, we say that the **nominal rate of interest** was 5%. “Nominal” means name. But the **real rate of interest** was 0. Remember that the word “real” always means “adjusted for inflation”. **The real rate of interest is calculated as the nominal rate of interest minus the rate of inflation.** It is the real interest rate, not the nominal interest rate, which affects people’s behaviors.

### Test Your Understanding

In 1979, I was driving my Fiat to work when it caught on fire as I entered a freeway. After being lucky enough to get the fire out, I was terrified to drive the Fiat again. So I had to buy a new car. So I went to a bank and asked for a car loan. The bank agreed to lend me the purchase price of a Toyota with a three-year loan at an interest rate of 9% per year. Then, in 1980, prices rose by 13.5%, the highest inflation rate of the 20<sup>th</sup> century. What was my real interest rate for 1980? What does this mean?

One might be inclined to cheer that debtors win while creditors lose. We think of debtors as people like you and me. We think of creditors as large financial institutions such as banks. But in fact, you and I are very likely to be creditors. You will see this several times throughout the course. You and I are creditors when we save in financial form. When you have a checking account, you are a creditor. When you have a savings account, you are a creditor. The same is true if you hold Treasury securities, money market funds, corporate bonds, or any of the other financial instruments that we will discuss in future chapters. **Therefore, when inflation is unexpected, people who save in financial form are losers.** Many of today's elderly people were hurt badly by the inflation of the 1970s. Their Social Security was not the reason because Social Security has a COLA. But the money they had saved for their retirement lost much of its value as prices rose so greatly.

**Homeowners are big “winners” from inflation.** First, they “win” because they are debtors. Nearly everyone who has bought a home has borrowed money to pay for it (called a “mortgage”). But secondly, **they “win” because the value of their homes tends to increase more than the rate of inflation.** In 1975, the median home in San Diego sold for approximately \$65,000. By 1982, this was \$125,000. By the middle of the 1990s, it had risen to about \$200,000. Today, it is about \$500,000. Inflation is one major reason that this occurred. Someone who bought a home in the 1970s or early 1980s might own a home worth \$250,000 or more today while still owing less than \$50,000 on the mortgage. How does one “win” from this? One way is to sell one's home and buy another one in a different area. But more likely, one borrows an amount from a bank secured by the value of the home that one owns. For example, my neighbor is a retired Navy enlisted man living on Social Security and a Navy pension. On this income, he owns a very large RV, a boat, and property by a lake for his summer home. He could never afford this lifestyle on his income. But he can afford it by borrowing against the increased value of the home he has owned since 1965.

If we look at the average wage earner, we find that, **on average, wage earners kept up with inflation.** That is, when prices rose 5%, nominal wages rose 5% as well. It might have taken a few months for wages to catch up to prices. **On average, real wages did not fall during the large inflations of the 1970s.** (Remember again that the word “real” means “adjusted for inflation”.) However, the average can be a misleading statistic. **Some workers “won” during the period of high inflation while others “lost”.** During the high inflation of the 1970s, the workers who “won” (that is, their wage increases were greater than the increases in prices) were those who had strong labor unions. This included automobile workers, coal miners, postal workers, and so forth. Nearly all other workers were “losers” during that period.

**In a different way, the government is a “winner” during a period of inflation. This means that inflation shifts society’s resources away from private activities and toward activities undertaken by government.** Government “wins” from inflation in two ways. **First, government is a debtor** and therefore “wins” as any debtor does. The debt of the government is called the *“national debt”*. This will be discussed later. **Second, until 1985, the government “won” because of the nature of the income tax.** Suppose that last year, you had an income of \$10,000. You paid 10% of this as tax to the government -- \$1,000. Now this year, prices rise by 10%. Your income also rises by 10% -- to \$11,000. Are you any better off? The answer is: of course not. You can buy no more this year than you could last year. But until 1985, the tax system treated you as indeed being better off. Not only were you taxed on the full \$11,000 of income; your tax rate would rise as well. So you might pay 11% of the \$11,000 -- or \$1,210 – in tax. A rough rule of thumb was that **when prices rose 10% and nominal income rose 10%, taxes paid would rise approximately 15%.** We will discuss the tax system in Chapter 18. You will see that the tax rate you pay is called your **“tax bracket”**. *Since inflation causes you to creep up into a higher tax bracket (from 10% to 11%), this phenomenon has been called “bracket creep”*. Because of it, tax revenues for the government would increase enormously. Yet, no politician could be blamed for raising your taxes.

To summarize, let us look at the social classes. If we can categorize people very crudely, we would say that **those people we would categorize as middle class are big “winners” from inflation.** They “win” because, for middle class families, the main asset is their homes. And their homes, and most of the furniture and appliances in them, are paid for by going into debt. My neighbor can have an RV, boat, and summer home because of the increase in the value of his home, not because of his income. **Those people we would categorize as upper class are losers from inflation.** They lose because they do most of the saving that is done in financial form. In the United States, about half of all of the financial wealth is owned by the richest 1% of families. Even those who own stock lose during periods of inflation as stock market prices tend not to rise as fast as inflation rates. **And those people we would categorize as lower class also lose.** Those who are working do not have strong unions. Without strong unions, their wages are not likely to keep up with inflation. Those on welfare lose because, since 1975, welfare has not had a COLA. **Therefore, in terms of wealth, inflation tends to bring the middle class people closer to the rich and farther from the poor.**

As we have seen, inflation makes some people richer and some people poorer. But it does so in a way that most of us would not see as fair. People who become rich usually have special skills and talents. They usually work very hard and make important contributions. They are rich because people are willing to pay them greatly for what they can do. Most of us consider this fair and acceptable. But inflation makes some people richer who have not done anything to deserve it. My neighbor can live much better than I can only because he bought his home much earlier than I did. And it was the situation of his life, not any brilliant investment decision, which caused him to buy his home. **So inflation can cause social frictions involving people who see others as unfairly gaining while they see themselves as being unfairly hurt.**

### Test Your Understanding

1. In 1982, Joe bought a house. Figuring that inflation would continue at least 10% a year, Joe accepted a 30-year loan at a 17% nominal interest rate. In reality, by 1983, prices were rising at a bit over 3% per year. What real interest rate did Joe expect he was paying? What real interest rate did Joe actually pay in 1983?
2. Would each of the following be better off or worse off because of unexpected inflation? In each case, **explain why**.
  1. People who already own homes
  2. People who want to buy homes
  3. People on fixed incomes
  4. People with large credit card debt
  5. People with a considerable amount of money in a savings account
  6. The federal government
3. If you believed that a high rate of inflation was coming soon, what would happen to each of the following:
  1. The amount you would save in a bank
  2. The amount of debt you would want to be in
  3. The number of homes you would want to own

## 6. Effects of Inflation: Slowing the Growth of Production

In addition to the “winners” and “losers”, inflation acts to make us all poorer. That is, **inflation causes the production of goods and services (the Real Gross Domestic Product) to grow slower than it otherwise would**. Notice that Real Gross Domestic Product does not actually decrease as a result of inflation. But it does grow slower. **Therefore Real Gross Domestic Product is significantly lower today than it *could have been had we had no inflation in the past***. We could be much richer today than we are. Let us see why this is so.

Earlier, we saw that a major factor in increasing Real Gross Domestic Product is Business Investment Spending --- businesses buying new capital goods. To a large extent, businesses pay for these new capital goods by borrowing from financial institutions such as banks. The financial institutions get the money to lend to these businesses from the savings of the people. ***In summary, there is a sequence that brings about the growth of production. You save in a financial institution. The financial institution lends the money to businesses. The businesses use the money to buy new capital goods. The capital goods are used to increase production.*** During periods of inflation, this sequence breaks down for at least four reasons.

First, as we saw earlier, people who save in financial form tend to be “losers” during a period of inflation. If prices rise considerably, money put in a savings account or checking account will likely be worth less next year than it is now, even if the accounts pay some interest. **Therefore, people are likely to place less money in accounts at financial institutions**. In a time of inflation, spending all of this year’s income is a good strategy. This year’s income will never buy more than it will today.

Second, also as we saw earlier, debtors are “winners” during a time of inflation. If prices are rising significantly, a good strategy is not only to spend all of this year’s income, but next year’s income as well. This means going into debt. In future years, one

can pay back the debt in dollars that are worth less (that is, will buy less) than the ones that are borrowed today. **Therefore, much of the savings that does occur is loaned to consumers to buy cars or clothes and not loaned to businesses to buy new capital goods.** Since businesses do not get access to the money, the new capital goods are not purchased and overall production does not increase.

Third, in a period of inflation, those people who still wish to save will not do so in financial form. They will look for what are called *“inflation hedges”*. *Certain forms of saving tend to hold their value during a period of inflation. This means that if prices rise 10%, the value of these “inflation hedges” is likely to rise by at least 10%.* The most prominent of these inflation hedges, as noted earlier in this chapter, is **real estate**. People will buy homes, open land, or commercial property as a way of owning assets whose value will rise with inflation. Other prominent inflation hedges include the **precious metals** --- gold and silver. People will buy gold bars, gold coins, and so forth -- anything that is made of gold or silver. Because of this, **jewelry** of all kinds makes a good inflation hedge. The gold or silver holds its value during times of inflation. And the jewels (diamonds, rubies, emeralds, and so forth) also hold their value during a time of inflation. Finally, **collectibles** of all kinds make excellent inflation hedges. Stamp collections, coin collections, classic cars, antiques, rare art, rare comic books, baseball cards, rare wines, books signed by the author, and so forth all tend to hold their value in a period of inflation. **The point is that the savings of people are going to sellers of real estate, to gold or silver dealers, to jewelers, to holders of stamp or coin collections, to owners of classic cars, etc. The savings of people are not going to the financial institutions, the only institutions capable of channeling them to the businesses.** Therefore, these savings are not available for the businesses to borrow and use to buy new capital goods.

Fourth, when inflation occurs, it usually occurs in an unpredictable way. Prices do not rise at the same rate every year. In some years, prices rise greatly while, in other years, prices rise much less. Because of the unpredictability of inflation, it generates uncertainty for business decision makers. **Businesses are much less likely to buy new capital goods in a period of uncertainty.** For some capital goods, it can be a long time from the decision to buy the capital good until that capital good is actually being used. For example, if the capital good is a new factory building, it can take five years or more to build the building and get it running. And, once it is being used, the capital good is expected to last for a considerable period of time. Capital goods will therefore pay off well into the future. **But when the future is uncertain, businesses will be reluctant to buy the capital good.** What if we build a new factory and, because of inflation, conditions change? At the higher prices, the products built at the new factory are too expensive and do not sell. In the future, the top executives of the company will find that it was a mistake to have built the new factory. Those who are responsible for the decision to build it may lose everything. In a period of uncertainty, they will not take that chance.

In summary, in a period of inflation, there is less saving in total. Of the saving that does occur, less is placed in financial institutions. Of the savings that is placed in financial institutions, more is loaned to consumers for items like cars and clothes. For

these three reasons, there is less money for businesses to borrow from financial institutions. And because of the uncertainty that exists in a period of inflation, businesses are less likely to want to borrow money to buy new capital goods. So fewer capital goods are bought. Had they been bought, they would have been used to increase production. **We are producing less today than we could have been producing had these capital goods been purchased in the past.**

## 7. Summary

In this chapter, we have seen that there are two measures of inflation. The Consumer Price Index (CPI) is very important to many people because their incomes depend on it. But the Consumer Price Index (CPI) has several flaws that cause it to overstate the change in the true cost of living by at least one percentage point. The GDP Deflator is a better measure of inflation, largely because it considers the change in the prices of all of the goods and services that are produced in the United States. We have seen that inflation, especially when it is not expected, causes some people to become wealthier while other people are becoming poorer. This change may cause social problems because it might not be seen as fair. We have seen that inflation causes a shift toward having more of the goods and services that government provides and fewer of the goods and services that private individuals provide. And finally, we have seen that inflation causes production to grow slower than it otherwise would. We are a poorer country today than we could have been because of the inflations we have had in the past.

We have now concluded Part I of the macroeconomics part of the course. We have discussed economic growth --- the enormous growth of the 20<sup>th</sup> century and the slowing of economic growth in the last quarter of the 20<sup>th</sup> century. We have discussed the business cycle and the problem of unemployment. We have discussed the problem of inflation. We have evaluated the measures of production, unemployment, and inflation. And we have considered the effects of slower economic growth, unemployment, and inflation on our society. The rest of the course is devoted to explaining why these problems have occurred and what policies have been used to remedy them.

### Practice Quiz for Class 25

1. Assume that there are only two goods: pencils and books.

In the base year,	Quantity	Price	In the current year,	Quantity	Price
Pencils	13	\$4		10	\$ 8
Books	4	\$7		10	\$14

The **Consumer Price Index (CPI)** for the current year is:

- a. 50   b. 100   c. 200   d. 275   e. 300

2. If the Consumer Price Index for this year is 200, how many dollars would be required today to be able to buy the same goods and services as \$1 could buy in the base year of 1982 to 1984?

- a. \$1   b. \$2   c. \$200   d. \$201

3. Last year, the Consumer Price Index was 100. This year it is 105. By what percent did prices rise this year?

- a. 100%   b. 105%   c. 5%   d. 205%

4. The Consumer Price Index **overstated** the change in the cost of living because:
  - a. it did not consider that people substitute cheaper products for more expensive ones as price rise
  - b. it did not consider that people substitute cheaper stores for more expensive ones as price rise
  - c. it did not adequately consider the change in the quality of products
  - d. all of the above
  
5. The **GDP Deflator** is calculated as:
  - a. the cost today to buy the same market basket of goods and services as was bought in 1982-1984
  - b. the Nominal Gross Domestic Product divided by the Real Gross Domestic Product
  - c. the Real Gross Domestic Product divided by the population
  - d. the Nominal Gross Domestic Product divided by the National Income
  
6. **The GDP Deflator** is a better measure of overall inflation than the Consumer Price Index because
  - a. it considers the Nominal Gross Domestic Product but not the Real Gross Domestic Product
  - b. it is based on wholesale prices and not retail prices
  - c. it includes the price of every good and service appearing in the Gross Domestic Product
  - d. it includes only a group of goods and services bought by a typical middle-class household
  
7. Which of the following would **lose** because of unexpected inflation:
  - a. Mary has a COLA on her Social Security benefits
  - b. Jose bought his home ten years ago
  - c. Lynn borrowed \$10,000 three years ago to buy a new car
  - d. Robert has \$50,000 in a savings account for his retirement
  
8. If the nominal interest rate is 20% and the inflation rate is 8%, the **real interest rate** is:
  - a. 2 1/2%
  - b. 8%
  - c. 12%
  - d. 20%
  - e. 28%
  
9. For which of the following reasons might inflation cause **Real Gross Domestic Product to grow slower** than it otherwise would?
  - a. Inflation encourages people to save too little
  - b. Inflation mischannels savings away from financial institutions
  - c. Inflation decreases business investment spending by increasing uncertainty
  - d. All of the above
  
10. If you just inherited \$100,000 today and you knew that high rates of inflation were coming very soon, which of the following would represent the best way to save your money?
  - a. checking accounts
  - b. savings accounts
  - c. stocks
  - d. real estate

Answers: 1. C 2. B 3. C 4. D 5. B 6. C 7. D 8. C 9. D 10. D