

19 Inflation and deflation

HL

By the end of this chapter, you should be able to:

- explain the concepts of inflation and deflation
- discuss the costs of inflation and deflation
- explain the causes of inflation and deflation
- explain the measures that may be taken to reduce inflation
- explain how inflation is measured
- discuss the problems in measuring inflation.

Inflation

In Chapter 14, you learned that one of a government's macroeconomic goals is price stability. Another way to express this is to say that governments desire a low and stable rate of inflation. Inflation is defined as a persistent increase in the average price level in the economy, usually measured through the calculation of a consumer price index (CPI). The word "persistent" is of great importance in your understanding of the concept. A single increase in prices is not called inflation. When inflation occurs, there is a sustained increase in the price level. It is also very important not to confuse inflation with an increase in the price of a particular good or service.

Costs of inflation

The reason that governments wish to have a low rate of inflation is because there are a significant number of negative consequences associated with high levels of inflation.

- *Loss of purchasing power:* If the rate of inflation is 2%, then this means that the average price of all goods and services in the economy has risen by 2%. If your income remains constant, then you will not be able to buy as many goods and services as you could before the increase in the average price level. We say that there is a fall in real income, which means that there is a decrease in the purchasing power of income. If your income is linked to the inflation rate, so that you automatically get a 2% "cost-of-living" increase, then you will not face a fall in your real income. This is the case for many jobs, particularly where there are strong unions. However, many people have jobs that don't offer the security of inflation-linked incomes. This may be because they are on fixed incomes or because they have weak bargaining power or because they are self-employed. Thus inflation reduces the purchasing power of their

incomes, and will reduce their living standards. It is important to realise that expectations about inflation are important. Even when people's incomes are linked to inflation, they can be negatively affected if the actual rate of inflation turns out to be higher than the expected rate. For example, if the expected rate of inflation is 1.5% and wages are therefore increased by 1.5%, then workers will lose purchasing power if inflation turns out to be 2.5%.

- *Effect on saving:* If you save \$1,000 in the bank at 4% annual interest, then in one year's time you will have \$1,040. If the inflation rate is 6%, then the real rate of interest (the interest rate adjusted for inflation) will be negative, and your savings will not be able to buy as much as they could have in the previous year. You would have been better off spending the money rather than saving it, because it will have lost some of its purchasing power. Therefore, we say that inflation discourages saving. If people do want to save money, rather than spend on consumption, then they may choose to buy fixed assets, such as houses or art. This means that there are fewer savings available in the economy for investment purposes, and this has negative implications for economic growth.
- *Effect on interest rates:* Commercial banks make their money from charging interest to people who borrow money from them. If there is a high rate of inflation, then banks raise their *nominal* interest rates in order to keep the real rate that they earn positive.
- *Effect on international competitiveness:* If a country has a higher rate of inflation than that of its trading partners, then this will make its exports less competitive, and will make imports from lower-inflation trading partners more attractive. This may lead to fewer export revenues and greater expenditure on imports, thus worsening the trade balance. It might lead to unemployment in export industries and in industries that compete with imports.
- *Uncertainty:* Not only might there be reduced investment due to a fall in the availability of savings, and higher nominal interest rates, but firms may be discouraged from investing due to the uncertainty associated with inflation. Again, this has negative implications for economic growth.
- *Labour unrest:* This may occur if workers do not feel that their wages and salaries are keeping up with inflation. It may lead to disputes between unions and management.

Did you know?

The most famous case of inflation in the twentieth century was the hyperinflation in Germany in 1923. The following list of the price of a single loaf of bread gives you an idea of how quickly prices rose.

Date	Price of a loaf of bread in Marks
June 1922	3.50
May 1923	1200
July 1923	100,000
September 1923	2 million
October 1923	670 million
1 November 1923	3 billion
15 November 1923	80 billion

In May 1923, it became necessary for people to use suitcases (or even wheelbarrows!) rather than wallets for their money. This is not surprising given the fact that it cost 50 billion Marks to buy a glass of beer!

Source: www.joelscoins.com

Deflation

Deflation is defined as a persistent fall in the average level of prices in the economy. There are two broad explanations for a fall in the price level, and economists have used these to categorise “good deflation” and “bad deflation”.

The first type of deflation, “good” deflation, comes about from improvements in the supply side of the economy and/or increased productivity. A simple aggregate demand/aggregate supply diagram will illustrate that an increase in the long-run aggregate supply curve can result in an increase in real output and a fall in the price level. If the level of real output increases, then we can assume that there is a lower level of unemployment as more workers will be needed to produce the higher level of output.

The second type of deflation, “bad” deflation, finds its source in the demand side of the economy. Another simple aggregate demand/aggregate supply diagram will illustrate that a fall in aggregate demand will result in a decrease in the price level and a decrease in real output. If real output decreases, then it is assumed that the level of unemployment will rise, as firms will need fewer workers if there is less demand.

Both causes of deflation result in a fall in the price level, but we might say that the first is positive because it results in an increase in real output and a fall in unemployment, while the second is negative because it results in a fall in real output and a rise in unemployment.

Student workpoint 19.1

Be a thinker

Draw and accurately label two aggregate demand/aggregate supply diagrams, one to illustrate “good” deflation and one to illustrate “bad” inflation.

It is very important that you do not confuse deflation with a falling rate of inflation, which might be referred to as disinflation. Consider Figure 19.1, which shows the inflation rate for a country for the years 1999 to 2005. From 1999 to 2000, the inflation rate rose from 1.2% to 1.6%. From 2000 to 2001, the inflation rate fell from 1.6% to 1.3%. This means that the average level of prices rose, but at a lower rate than in the previous year. This may be referred to as disinflation. In the next two years, the inflation rate continued to fall. Prices were still rising, but by a smaller and smaller amount. Moving into 2004, the country experienced deflation, where the average level of prices actually fell by 0.5%. From 2004 to 2005, the country was still in a period of deflation, where average prices fell by 0.3%.

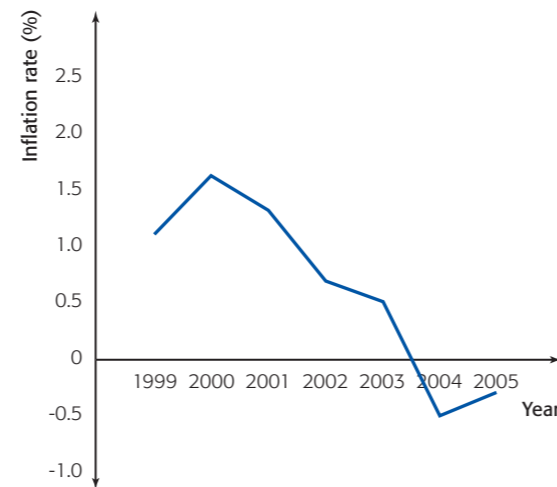


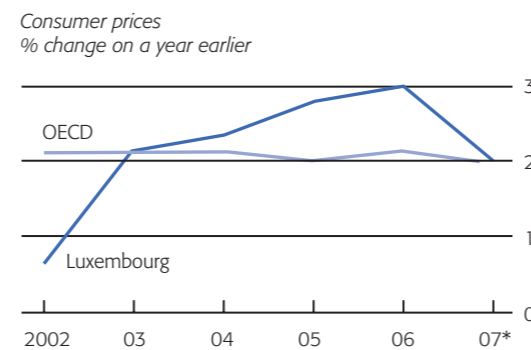
Figure 19.1 Changing rates of inflation and deflation

Student workpoint 19.2

Be a thinker. Explain the following:

Consider the data for Luxembourg and the average of the OECD countries in the accompanying graph and answer the questions that follow. Note that 2006 and 2007 are predictions.

- From 2002 to 2005, Luxembourg experienced a persistent increase in the percentage change in consumer prices. This means that the inflation rate was rising throughout the period. What is the difference between the rate of change of prices from 2002 to 2003 and from 2003 to 2005?
- What is forecast to happen to prices in 2006 and 2007? (Be careful here!)



Source: *The Economist*, 15–21 July 2006, p. 84

Costs of deflation

Although as consumers we might be pleased to face falling prices, a significant number of problems can be associated with a fall in the price level. In fact, economists might argue that the costs of deflation are greater than the costs of inflation.

- Unemployment:** The biggest problem associated with deflation is unemployment. If aggregate demand is low, then businesses are likely to lay off workers. This may then lead to a deflationary spiral. If prices are falling, consumers will put off the purchase of any durable goods as they will want to wait until the prices drop even further. This may be referred to as deferred consumption. This will further reduce aggregate demand. If households become

pessimistic about the economic future, then consumer confidence will fall. Low consumer confidence is likely to further depress aggregate demand. Thus a deflationary spiral may occur.

- Effect on investment:** When there is deflation, businesses make less profit, or make losses. This may lead them to lay off workers. Furthermore, business confidence is likely to be low, and this is likely to result in reduced investment. This has negative implications for future economic growth.
- Costs to debtors:** Anyone who has taken a loan (this includes all homeowners who have taken a mortgage to buy their home) suffers as a result of inflation because the value of their debt rises as a result of deflation. If profits are low, this may make it too difficult for businesses to pay back their loans and there may be many bankruptcies. This will further worsen business confidence.

Student workpoint 19.3

Be knowledgeable

Read the following article written about the Japanese economy in 2001. Note the problems associated with deflation.

THE JAPANESE CLIMATE REMAINS OVERCAST

As Japan enters the new millennium in a state of deflation, the mood could hardly be more different from the euphoric confidence of a decade ago when the economy was booming.

The evidence of the country's difficulties can hardly be in doubt. Banks continue to collapse, unemployment remains stubbornly high and consumers refuse to spend to help rekindle growth. Confidence is at an all-time

low. On top of all of this is a huge government debt, as governments have desperately tried to kick-start the economy to fight deflation by increasing their own spending.

Prospects for economic recovery are rather dim. If consumers are convinced that Japan faces more protracted problems, the economy will be caught firmly in a self-fulfilling downward spiral.

International Herald Tribune, 2 January 2001.

Causes of inflation

We can divide the causes of inflation into three main types: demand-pull inflation, cost-push inflation and inflation due to excess monetary growth.

Demand-pull inflation

As the name suggests, demand-pull inflation occurs as a result of increasing aggregate demand in the economy. This can occur when the economy is approaching full employment as in Figure 19.2(a) or when the economy is at the full employment level of income as in Figure 19.2(b).

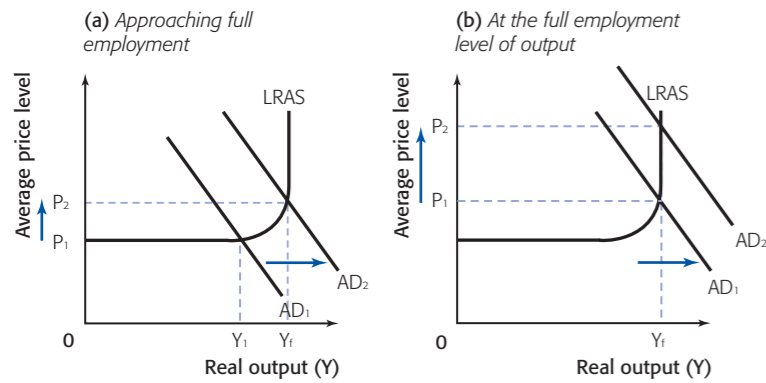


Figure 19.2 Demand-pull inflation

In Figure 19.2(a), the economy is near the full employment level of income, with a small amount of spare capacity in the economy. An increase in aggregate demand will result in an increase in the average price level along with an increase in real output. In Figure 19.2(b), there is a similar increase in aggregate demand, but in this case, the economy is at the full employment level of income and cannot expand output to meet the increased demand. In this case, the result is purely inflationary. In each case, the increase in aggregate demand “pulls up” the average price level. The reasons for the increase in aggregate demand in either example could be due to changes in any of the components of aggregate demand. For example, there could be a high level of consumer confidence, causing consumers to increase consumption. There could be a high level of demand for a country’s exports due to rising foreign incomes. The increase might be due to an increase in government spending.

Cost-push inflation

Cost-push inflation occurs as a result of an increase in the costs of production. As you know, an increase in costs results in a fall in short-run aggregate supply from $SRAS_1$ to $SRAS_2$. This results in an increase in the average price level and a fall in the level of real output. Cost-push inflation is illustrated in Figure 19.3

The causes of increases in costs are discussed in Chapter 17. Increases in the price level due to increases in the costs of labour may be referred to as wage-push inflation. Changes in the costs of domestic raw materials will increase firms’ costs of production, creating cost-push pressures. Increases in the costs of imported capital, components, or raw materials also increase costs of production to firms, causing import-push inflation. It is worth noting that a fall in the value of a country’s currency can cause import-push inflation. This is because a lower exchange rate makes imported capital, components, and raw materials more expensive, thereby increasing the costs of production to the country’s firms.

Demand-pull and cost-push inflation together

Regardless of the source of the increase in the average price level, one of the problems associated with inflation is its tendency to perpetuate itself. For example, consider what happens if there is an

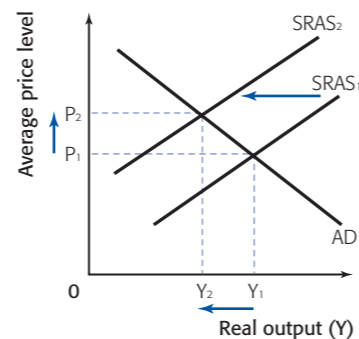


Figure 19.3 Cost-push inflation

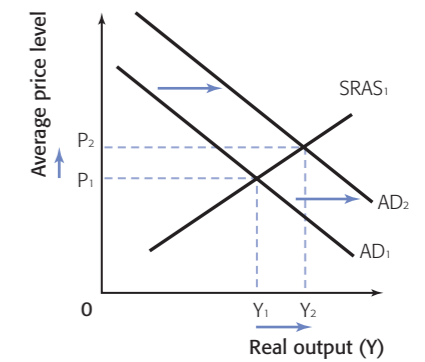


Figure 19.4 Demand-pull inflation

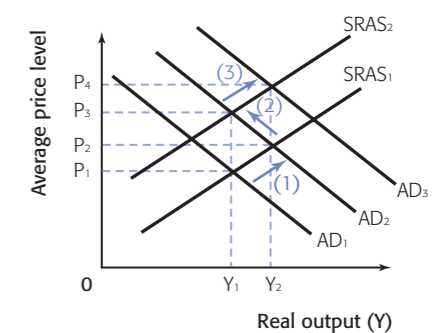


Figure 19.5 An inflationary spiral

increase in aggregate demand due to increased wealth in the economy (perhaps due to rising house prices). Let’s look at the effects in the short run as shown in Figure 19.4.

If we assume that the economy is near full employment, then the increase in aggregate demand results in an increase in demand-pull inflation as the price level rises from P_1 to P_2 , as shown in movement (1) in Figure 19.5. The diagram shows what may happen next. The higher price level means that costs of production rise. Also, because the price level increases, workers will negotiate for higher wages and this further increases the costs of production. Thus there will be a shift in the short-run aggregate supply curve from $SRAS_1$ to $SRAS_2$ as a result of cost-push pressures. This is the movement (2) in the diagram. The cycle will not necessarily stop there. Higher wages may give households the illusion that they have more spending power and this might encourage further increases in consumption, shown as another increase in aggregate demand to AD_3 and the movement (3) in the diagram. This may be referred to as an inflationary spiral.

Inflation due to excess monetary growth

A group of economists known as monetarists identified a third cause of inflation. This view gained popularity in the 1970s. One proponent of this view was Milton Friedman whose famous quotation is: “Inflation is always and everywhere a monetary phenomenon.” Monetarists argue that excessive increases in the money supply by government are the cause of inflation. As noted in Chapter 16, the level of money supply in the economy is an advanced topic not covered in the IB Diploma Programme syllabus. However, you can rely on your common sense to recognize that if there is more money in the economy, then there will be more spending, thus higher aggregate demand. Monetarism is a “branch” of neo-classical economics and so we use the neo-classical long-run aggregate supply curve to show this type of inflation. This is shown in Figure 19.6.

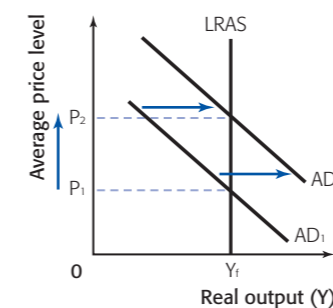


Figure 19.6 Inflation due to excess monetary growth

Monetarists say that increases in the money supply result in higher aggregate demand from AD_1 to AD_2 . Because the economy rests at the full employment level of output in the long run, such increases in aggregate demand due to increases in the money supply are purely inflationary, with the price level rising from P_1 to P_2 .

Profile Milton Friedman (1912–2006)



Milton Friedman was born in New York City. His parents were working class immigrants from what is now Ukraine. He studied at Rutgers University, achieving his Bachelor's degree when he was twenty years old. He then went on to earn a Masters degree at the University of Chicago in 1933 and a PhD from Columbia University in 1946. He won a prestigious award honouring economists under the age of forty in 1952, and in 1976 he was awarded the Nobel Prize for Economics for "his achievements in the fields of consumption analysis, monetary history and theory, and for his demonstration of the complexity of stabilization policy" (<http://nobelprize.org>). He published a vast number of books and articles, including a number of publications with his wife, Rose Friedman.

Friedman was a passionate supporter of the free market, and in this sense, might be referred to as a *neo-classical* economist. Yet he is most well-known for his work as a monetarist economist. Challenging the Keynesian paradigm in the

1950s, Friedman presented a modern application of an old economic equation called the quantity theory of money to justify his claim that the price level in an economy is dependent on the money supply. Although Keynesian economic theories maintained their prominence through much of the sixties, the work of Friedman and his fellow monetarists became increasingly more attractive towards the end of the sixties and the seventies. During this time, the combined economic problems of high rates of inflation and high levels of unemployment (known as stagflation) could not be solved through the application of Keynesian demand management policies. One famous quotation of Friedman is, "inflation is always and everywhere a monetary phenomenon", meaning essentially that inflation is always caused by increases in the money supply. The monetarist argument made famous by Friedman rests on a conviction that strict control of the money supply is necessary to control inflation. In his commitment to the value of free markets, he was also a strong advocate of the importance of a limited role of the government in the economy.

Reducing inflation

The appropriate policies to reduce inflation depend on the type of inflation. Given that demand-pull inflation is due to excess aggregate demand, then an appropriate policy would be to reduce aggregate demand. Thus the government could use deflationary fiscal policy (increase taxes and lower government spending) and/or deflationary monetary policy (raise interest rates and reduce the money supply).



However, there are problems associated with such policies. First of all, from a political standpoint, such policies are highly unpopular. A voting population is unlikely to be happy to accept higher taxes as it reduces disposable income and the level of consumption. A reduction in government spending will inevitably impact upon a variety of groups in the economy, and this may result in less support for the government. Higher interest rates will also harm some people in the economy, most obviously anybody who has taken a loan or mortgage. Higher interest rates mean higher loan and mortgage repayments and will therefore be unpopular. A government that is concerned about being re-elected will be reluctant to use these methods to fight inflation.

However, as noted in Chapter 16, monetary policy is carried out by central banks, and in most industrialised countries the central bank is an independent body whose main goal is the maintenance of a low and stable rate of inflation. In some countries, including Poland, South Korea, Canada, England, Australia, and New Zealand, the central bank sets an explicit target rate of inflation. The quotation in Did you know? stating the policy of the National Bank of Poland (NBP), shows that this central bank uses changes in interest rates to keep the inflation rate within the targeted range of 2.5% plus or minus 1%. Other central banks, such as the Federal Reserve in the US and the European Central Bank, have an implicit target rate of inflation. That means that there is an informal target rate that these central banks choose, rather than an officially stated one.

Did you know?

Case study: the policy of the central bank of Poland

"Since 1999 the direct inflation target strategy has been utilised in the implementation of monetary policy. Within the framework of this strategy, the Monetary Policy Council defines the inflation target and then adjusts the NBP basic interest rates in order to maximise the probability of achieving the target. Since the beginning of 2004, the National Bank of Poland has pursued a continuous inflation target at the level of 2.5% with a permissible fluctuation band of +/- 1 percentage point. The NBP maintains interest rates at a level consistent with the adopted inflation target by influencing the level of nominal short-term interest rates on the money market. Money market rates affect loan and deposit rates at commercial banks and thus the size of loans, the demand within the economy and the inflation rate."

Source: www.nbp.pl

The movement towards independence for central banks started in many countries in the 1980s and was partially due to the tendency of governments to use monetary policy to pursue short-term political objectives. Such tendencies often resulted in unacceptably high levels of inflation as governments, keen to be popular, were reluctant to adopt any policies such as higher interest rates in order to fight inflation. As a result of the greater independence for central banks and inflation targeting, many countries have successfully prevented high inflation from occurring.

Targeting inflation, whether explicitly or implicitly, is said to be beneficial as it results in a reduction in inflationary expectations. That is, as long as people have faith in the central bank's ability to contain inflation, then they will not expect higher rates of inflation. If they do not expect higher inflation, then they will not make demands for increases in wages any higher than the expected rate of inflation, and this will keep the costs of labour from rising excessively. This suppresses cost-push inflationary pressure.

It is fair to say that the more independent the central bank, the more likely that price stability will be maintained. If inflation is rising or inflationary pressures are building up, then a way to bring these down would be to raise interest rates. Central banks keep very close watch on signs of inflation and are ready to raise interest rates to reduce inflationary pressure. While a government would be reluctant to do this, the central bank can make the politically unpopular decision because it does not have to worry about being re-elected!

Student workpoint 19.4

Be an inquirer—conduct an investigation

Investigate the role of the central bank and inflation in your OECD country. Write a brief report to include an explanation of its recent inflation history along with a discussion of the way in which its central bank attempts to maintain price stability. Does this central bank target a specific rate of inflation?



Nowadays, monetary policy is considered to be the most effective way of managing aggregate demand in the economy and changes in interest rates are considered the best weapon in the fight against inflation. Fiscal policy is not seen to be as effective as monetary policy in battling inflation. It would be very difficult for governments to reduce their spending because of their commitments to the public. Moreover, even if governments could reduce their spending, it would take a long time for the cuts to have any effect on the price level.

If inflation is of a cost-push nature, then deflationary demand-side policies may bring down the price level, but they will result in lower national output and are likely to cause unemployment to rise. Thus demand-side policies are ineffective and supply-side policies such as the policies described in Chapter 17 are the appropriate policies to deal with cost-push inflation. However, as you might predict, when inflation does occur, it is difficult to distinguish the demand-pull from the cost-push factors, and so policy-makers are likely to use a mix of solutions.

For monetarists who believe that inflation is caused by excessive growth of the money supply, then the solution is plain. The money supply should only increase by the same amount as the real increase in national output. That is, if national output is growing by 3%, then the money supply should also grow by 3%. If money supply increases by more than 3%, then the economy will face a situation where “there is too much money chasing too few goods” and so prices will rise to ration the output. Practically speaking, it is very difficult for governments and/or central banks to control the money supply in the economy, and it is not within our syllabus to discuss how they try to do so.

Student workpoint 19.5

Be a thinker

Read the text below and answer the questions that follow.

FED CHIEF EXPECTING INFLATION TO RETREAT

The US Federal Reserve expects inflation to retreat from recent highs but could still raise interest rates, Ben Bernanke, chairman, told Congress yesterday. His testimony came as the Fed chairman released forecasts suggesting that it is prepared to bring inflation down gradually to minimize the damage to the economy.

The forecasts to Congress show that Fed policymakers are willing to tolerate an inflation rate, on its core measure, of 2% or slightly above this year and next, providing it is heading in the right direction. Officials think that this will allow the economy to grow at close to its trend rate of 3% to 3.5% over this

year and next.

The Fed chair told senators that the forecasts are based on the assumption that a slowdown from above-trend growth is already under way and that this would reduce inflationary pressure over time. This is primarily due to weaker consumer demand as a result of higher energy costs and a softening housing market with fewer house sales and a fall in the growth of house prices. However, he did add that there are still some inflation risks. The combination of high energy prices and high levels of capacity utilization may sustain inflationary pressure.

Financial Times, 19 July 2006

- 1 Using a diagram, explain which phase of the business cycle the US economy seems to be in.
- 2 Explain **two** reasons why inflation can cause “damage to the economy”.
- 3 Use a diagram to explain how the Fed could attempt to “bring inflation down”.

HL: How is inflation measured?

It is necessary to have some kind of an accurate measure of the increase in the price level. The most widely used statistic to measure inflation is known as the consumer price index (CPI). In some countries, this is referred to as the retail price index (RPI).

Not all prices change by the same amount over a given period of time; for example, the price of chocolate might increase by 5% in a year, while the price of petrol might increase by 10%. Neither of these is an appropriate measure of the change in the average price level. Statisticians in different countries around the world have slightly different ways of measuring the rate of inflation, but the central idea is the same. Simply put, they choose what is known as a representative “basket” of consumer goods and services and measure how the price of this basket changes over time. When the price of the basket increases, then this means that the average price level has risen.

What is meant by a “representative basket of consumer goods and services”? It would be impossible to devise a measure of inflation that includes all goods and services bought by consumers. In each country, the agency in charge of the compilation of economic data creates a list of the typical goods and services consumed by the average household. These items are grouped into a number of different categories. The prices of these items are measured each month to calculate the change in the price of the “basket”. The change in the price of the basket is reflected in the measure called the consumer price index. It is important to point out that some of the goods and services consumed are far more important than others, because they take up a larger share of consumers’ income. Thus the categories are given a weight in the index to reflect their importance in the average consumer’s income. The weights for the different categories for the United States CPI along with some examples of the items that are included are shown in Table 19.1.

Category	CPI weight (%)
Housing (rent of main residence, owners’ equivalent rent, heating, bedroom furniture)	40.1
Transportation (new vehicles, airline fares, gasoline/petrol, motor vehicle insurance)	19.7
Food and beverages (breakfast cereal, coffee, chicken, wine, service meals)	16.5
Recreation (televisions, pets and pet products, sports equipment, admission prices)	5.1
Medical care (prescription drugs and medical supplies, doctors’ services, eyeglasses)	5.1
Education and communication (university tuition, postage, computer software and accessories, telephone services)	5.6
Apparel (women’s dresses, men’s shirts, jewellery)	4.1
Other (haircuts and other personal services, funeral expenses, cigarettes)	3.6

Source: United States Bureau of Labor Statistics. www.bls.gov

Table 19.1 US CPI: categories and their weights

From the data, we can conclude that spending on food and beverages makes up 16.5% of the spending of the “typical” or average household. Thus changes in the prices of the food and beverage products in the basket will be given a weight of 16.5% in the calculation of the index. The components and the weighting of the basket are determined by surveys of household spending habits, and will change according to changes in consumption habits (see Table 19.2 for some examples of recent changes to the UK “basket”). The price of the basket is measured regularly by collecting prices from shopping outlets throughout the country, and a national average price is determined. This is the measure of the national consumer price index and changes in the index represent the “headline” inflation rate. This is the rate of inflation most commonly used and the one that we are most familiar with for judging the overall state of the country’s economy.

Changes to the UK CPI basket made in 2005

Note that the categories are not exactly the same as the categories shown in the data for the US CPI.

This illustrates the fact that the statistics are calculated differently in different countries.

CPI category (sub-grouping)	Change	Comment
Recreation and culture (household goods)	Added—Small pet, e.g. hamster	This improves the coverage of spending on pets and accessories
Miscellaneous goods and services (personal goods and services)	Added—Razor cartridge blades	This replaces disposable razors
Furniture, household equipment and maintenance (household goods)	Added—Wooden patio set	This replaces plastic patio sets
Food and non-alcoholic beverages (food)	Added—500 ml fizzy bottled drink	Previously, only canned fizzy drinks and fizzy drinks in large bottles were included
Clothing and footwear (clothing and footwear)	Removed—Children’s shorts	Removed due to some difficulty in collecting prices.
Food and non-alcoholic beverages (food)	Removed—French stick/baguette and tinned corned beef	
Recreation and culture (leisure goods)	Removed—Analogue camcorder	It has been difficult to collect prices due to the growth of the digital camcorder market. The Office of National Statistics is researching methods of quality adjustment of digital camcorder prices before these are introduced to the basket.

Source: Consumer Prices Index and Retail Prices Index: The 2005 Basket of Goods and Services. David Roe, Office for National Statistics

Table 19.2 Changes to the CPI basket of goods in the UK in 2005

Problems involved in the measurement of inflation

- Measuring inflation using the consumer price index has one main limitation. The basket used in any country represents the purchasing habits of a “typical” household, but this will not be applicable to all people. The purchasing habits of different people will clearly vary greatly. For example, the “basket” of a family with children will be very different from that of an elderly couple or a single person with no children. There may be variations in regional rates of inflation within a country. Although regional figures are published, the national figure is the more widely-used measure, and this may not be an accurate reflection for a particular area. If the national average is used as the basis for wage negotiations or pension changes, then these might not accurately reflect the price changes for a particular group. This will be harmful if the group has a higher cost of living than suggested by the national average, and beneficial for those whose spending costs are less than the average.
- There may be errors in the collection of data that limit the accuracy of the final results. Because it would be utterly impossible to collect the prices of all items bought by all households in all possible locations, it is necessary to take sample items in a sample of selected cities and a sample of selected

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outlets. The layers of sampling are likely to lead to some degree of inaccuracy. The larger the sample, the more accurate will be the results, but this is time-consuming and very costly.

- As Table 19.2 showed, statisticians try to take into account changes in consumption habits by making changes to the basket. Items are removed or added to be more representative of the typical household's demand. However, this takes a good deal of time. Moreover, if the items in the basket are changed, then this limits the ability of analysts to make comparisons from one time period to another. This is complicated by the fact that the quality of goods changes over time. For example, when a computer company upgrades a computer to include more built-in memory, then the quality of the product improves. The price of the computer may rise to reflect the improvement. If the computer is in the typical basket, then this will feed into a higher rate of inflation, yet the product isn't really the same product.
- Countries measure their rate of inflation in different ways, and include different components. This can make it problematic to make international comparisons.
- Prices may change for a variety of reasons that are not sustained. For example, seasonal variations in the prices of food and volatile oil prices may lead to unusual movements in the inflation rate and can be misleading. Statisticians make some effort to reduce such distorting effects by identifying a "core" rate of inflation that uses the information of the consumer price index but excludes food and energy prices.
- The CPI only measures changes in consumer prices, yet clearly other price changes are important in judging the economic health and prospects of a country. For this reason economists also measure changes in producer prices and commodity prices. These give economists a good idea of possible cost-push pressures.

Examination questions

Short response questions

- 1 With the help of a diagram, explain the concept of demand-pull inflation. [10 marks]
- 2 With the help of a diagram, explain the concept of cost-push inflation. [10 marks]
- 3 With the help of a diagram, explain the monetarist explanation of inflation. [10 marks]
- 4 Explain three consequences of inflation. [10 marks]
- 5 Explain three consequences of deflation. [10 marks]
- 6 Explain three problems involved in the measurement of inflation. [10 marks]

Essay questions

- 1 a Explain the main consequences of inflation. [10 marks]
b Evaluate the methods that might be used to reduce inflation. [15 marks]
- 2 a Explain the main causes of inflation. [10 marks]
b Evaluate the extent to which demand-side policies are effective in reducing inflation. [15 marks]

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