

Inflation

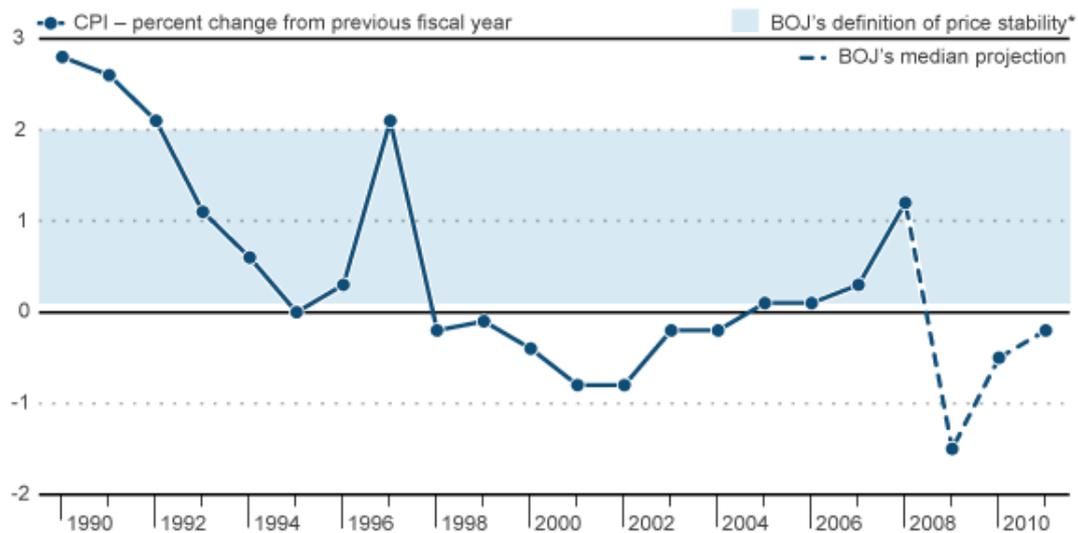
In this chapter we will be covering the following

- Definition of the terms: inflation, deflation and disinflation
- The measurement of inflation
- Costs of inflation & deflation
- Causes of inflation
- Solutions to inflation



Date:	German Marks needed to buy one ounce of gold
Jan 1919	170.00
Sept 1919	499.00
Jan 1920	1,340.00
Sept 1920	1,201.00
Jan 1921	1,349.00
Sept 1921	2,175.00
Jan 1922	3,976.00
Sept 1922	30,381.00
Jan 1923	372,477.00
Sept 1923	269,439,000.00
Oct 2, 1923	6,631,749,000.00
Oct 9, 1923	24,868,950,000.00
Oct 16, 1923	84,969,072,000.00
Oct 23, 1923	1,160,552,882,000.00
Oct 30, 1923	1,347,070,000,000.00
Nov 5, 1923	8,700,000,000,000.00
Nov 30, 1923	87,000,000,000,000.00

1. Use the graph below to identify the following terms and write definitions in the table



Inflation	
Deflation	
Disinflation	

Category	Order	Weight	Example 1	Example 2	Example 3
Alcohol and Tobacco					
Clothing and footwear					
Food and non-alcoholic beverages					
Transport					
Housing and household goods					
Recreation and culture					
Furniture and household goods					
Communication					
Restaurants and hotels					
Health					
Miscellaneous					
Education					

6. How are the weights that make up the Consumer Price Index determined?

7. What will happen to the composition of the basket of goods and the weightings over time?

8. In the table below identify three items that have been added to the UK's CPI basket of goods in 2011 and three items that have been removed.

Items added	Items removed



Calculating Inflation

- ✚ The rate of inflation is calculated in an economy by taking the change in the average weighted price index of the basket of goods and services from one year to the next.
- ✚ This sounds more confusing than it actually is: so to simplify things look at the table below.
- ✚ Using the same ‘basket of goods’ categories as before, we can see how the price level for each one in **Year 1 and Year 2** are represented by a price index. The average price index for **Year 1** is calculated by:-

Sum of price indices for each category / number of categories

$$1283/13 = 106.9$$

- ✚ Using the same method for **Year 2**, we can see that the average price index is **110.8**.
- ✚ To calculate the rate of inflation we take the average price index from Year 2, subtract the average price index for Year 1, divide by the figure from Year 1 and then multiply by 100.

$$\text{Inflation rate} = \frac{\text{average price index year 2} - \text{average price index year 1}}{\text{average price index year 1}} \times 100$$

Category	Index (Year 1)	Index (Year 2)
Alcohol & Tobacco	110	120
Clothing	105	100
Food	100	115
Transport	130	140
Housing	102	106
Recreation	108	109
household goods	101	100
Communication	100	95
Restaurants & hotels	106	110
Health	104	112
Miscellaneous	107	113
Education	110	110
	106.9	110.8

Inflation rate

3.7

$$((110.8-106.9)/106.9)*100$$

1. Now complete your own example using the figures below

Category	Index (Year 1)	Index (Year 2)
Alcohol & Tobacco	110	120
Clothing	108	104
Food	102	112
Transport	125	130
Housing	110	115
Recreation	115	116
household goods	100	104
Communication	103	100
Restaurants & hotels	109	116
Health	105	108
Miscellaneous	117	118
Education	121	122

2. This is only a simplified version of how the rate of inflation is calculated. Why would this approach be inaccurate?

- Therefore, we need to calculate the percentage change in the weighted average price index from one year to the next.
- Using the same weights as before, the price index for each category is multiplied by its weight (all weights add up to the one). The figures for each category are added together to get an average weighted price index. The process is repeated for Year 2 and then the rate of inflation is calculated in the same way as above.

Category	Index (Year 1)	Weight	Index Year 1 x weight	Index (Year 2)	Index Year 2 x weight
Alcohol & Tobacco	110	0.04	4.4	120	4.8
Clothing	105	0.06	6.3	100	6
Food	100	0.12	12	115	13.8
Transport	130	0.16	20.8	140	22.4
Housing	102	0.13	13.26	106	13.78
Recreation	108	0.15	16.2	109	16.35
household goods	101	0.05	5.05	100	5
Communication	100	0.03	3	95	2.85
Restaurants	106	0.12	12.72	110	13.2
Health	104	0.02	2.08	112	2.24
Miscellaneous	107	0.1	10.7	113	11.3
Education	110	0.02	2.2	110	2.2
		1	108.71		113.92

Inflation rate

4.792567

$$((113.92-108.71)/108.71)*100$$

$$\text{Inflation rate} = \frac{\text{average weighted price index year 2} - \text{average weighted price index year 1}}{\text{average weighted price index year 1}} \times 100$$

3. What do you notice about the difference in the rate of inflation once the category weights are taken into consideration?

4. Complete your own example using the figures below.

Category	Index (Year 1)	Weight	Index Year 1 x weight	Index (Year 2)	Index Year 2 x weight
Alcohol & Tobacco	110	0.04		120	
Clothing	108	0.06		104	
Food	102	0.12		112	
Transport	125	0.16		130	
Housing	110	0.13		115	
Recreation	115	0.15		116	
household goods	100	0.05		104	
Communication	103	0.03		100	
Restaurants & hotels	109	0.12		116	
Health	105	0.02		108	
Miscellaneous	117	0.1		118	
Education	121	0.02		122	

5. What would happen to the rate of inflation if the weighing for clothing and communications were to increase?

Problems of Measuring Inflation

Use the attached article to answer the comprehension questions below.

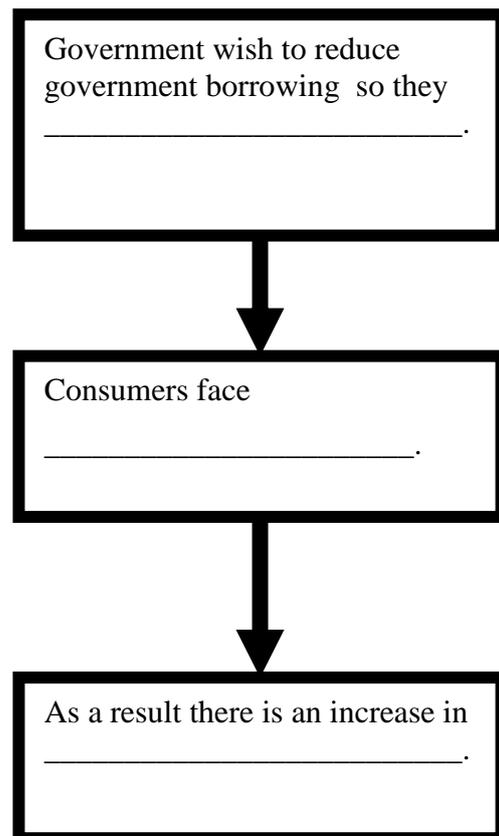
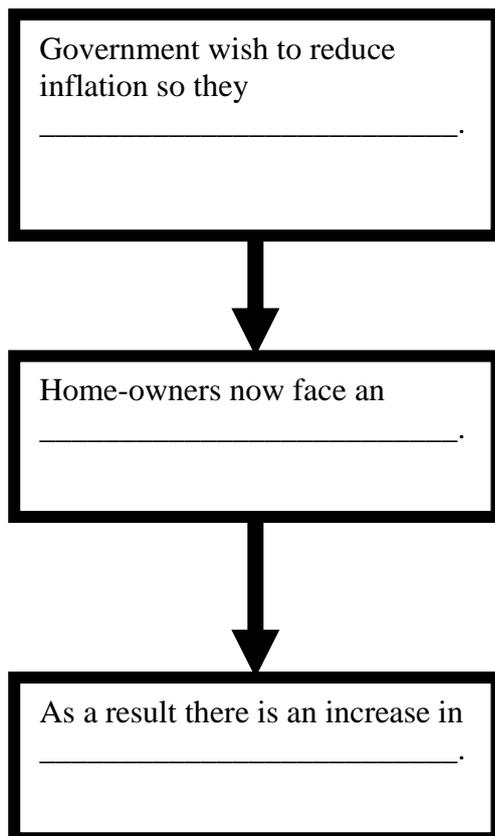
1. How many different prices are collected to compile the Retail Price Index?
(1)
2. How many different items are there in the Basket of Goods?
(1)
3. Give two examples of products that have been added or removed from the Basket of Goods.
(2)
4. How are the **weights** calculated?
(2)
5. Explain how the **weighting** of the Retail Price Index has changed between 1962 and 1999.
(3)
6. What is the first problem with the Consumer Price Index that is highlighted by the article?
(2)
7. What is the problem with the family expenditure survey?
(2)
8. What does this mean for any given household?
(2)
9. What is the argument in favour of including mortgage payments and indirect taxes in the Consumer Price Index?
(1)
10. What is the counter argument to including mortgage payments and indirect taxes in the Consumer Price Index?
(1)
11. Why might a government policy to reduce inflation actually lead to an increase in the short-run? (Think of interest rates)*
(2)
12. Why might an increase in indirect tax cause additional pressures in the economy? *
(2)
13. Why do the French and the Italians use changes in rent rather than changes in mortgage payments in their retail price index?
(2)

14. Define the following terms :-

- ◆ RPI
- ◆ RPIX
- ◆ RPIY

(3)

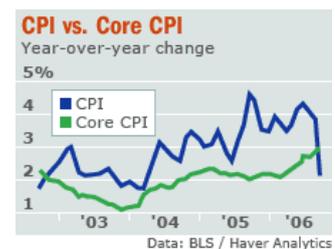
● Complete the following flow charts.



15. Certain goods and services in the basket of goods are subject to volatile price movements.

Can you give two examples of this?

- ✚ _____
- ✚ _____



16. So the rate of inflation is not distorted by those volatile price changes, many governments measure and publish a rate of inflation known as the 'core rate of inflation'.

✚ How might the ‘core rate of inflation’ differ from the headline (CPI or RPI) rate of inflation?

17. The CPI/RPI measures price changes for a wide variety of consumer goods. However, it does not include the prices of many goods and services sold by firms to other firms. Inflation in these markets will also have an impact on the macroeconomy. **The producer price index** is a weighted index of prices measured at the wholesale or producer level.

✚ Why do you think it is important to measure the **producer price index**?



Costs of Inflation

Lesson Objectives

- ✚ To look at the different costs of inflation for different groups in society.
- ✚ To look at how inflation may effect the macro economy.

✚ The following are all costs of inflation:-

1. Shoe-leather costs
2. Menu Costs
3. Psychological and political costs
4. Redistribution costs
5. Unemployment and Growth

Cost	Explanation
1. Shoe-leather costs 	
2. Menu Costs 	
3. Psychological costs 	
4. Redistributinal costs 	
5. Unemployment 	

6. Using your own knowledge say how inflation would have a negative/positive effect upon the following groups of people answers should be in sentence format and not one word answers.

✚ Politicians in power

✚ A pensioner on a fixed income

✚ A Restaurant owner

✚ A saver who receives a rate of interest of 4% on her savings when inflation is running at 6%.

✚ A borrower who borrowed money at 5% when inflation is 6%. (income rises in line with inflation)

✚ A worker whose tax allowance did not rise in 1999 when the rate of inflation was 6%. (income rises in line with inflation)

✚ A factory owner who manufactures rubber ducks for export. (U.K. inflation 6%; E.U. average 4%)

✚ A saver who receives a rate of interest on her savings of 4% when inflation is at 3%.

✚ A worker whose personal income tax allowance is £4000 in 1997, inflation is running at 2% and his allowance increases to £4500 the next year. (income rises in line with inflation)

✚ A Marketing Director whose salary increases by 10% in response to an increase in the rate of inflation of 3%

7. Complete the example below when the rate of inflation is 10% per year

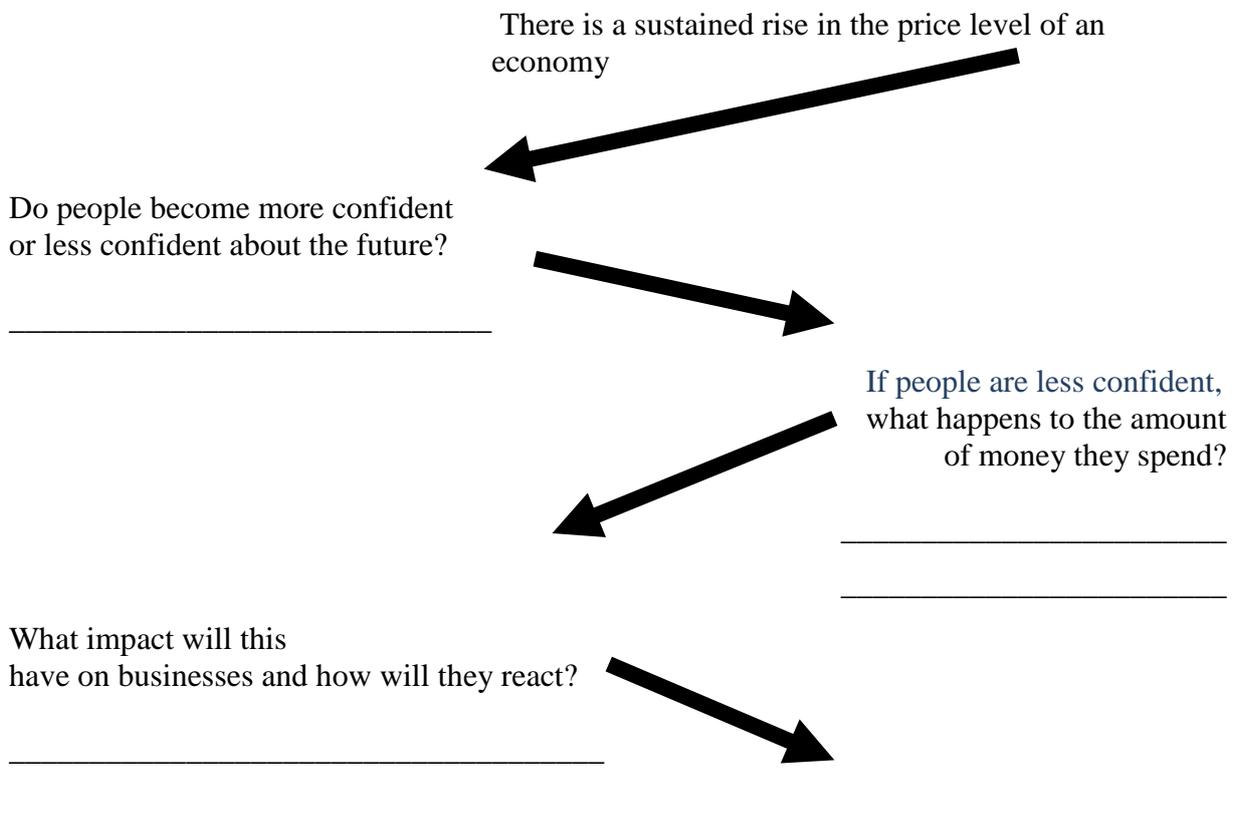
	Year 1	Year 2
Income	\$100,000	\$110,000
Allowance	\$10,000	<u>\$10,000</u>
Tax Rate	25%	25%
Taxable Income	\$90,000	\$100,000
Tax Paid	\$22,500	\$25,000
Tax Paid as a % of Gross Income	22.5% (average tax rate)	22.7% (average tax rate)

The allowance should increase in line with inflation to avoid people paying more tax.

8. Give three/four reasons why inflation might have a negative impact upon the whole economy. Use the notes you have been given to help you.

- + *Unemployment*
- + *Lower rate of economic growth*
- + *Less money from exports*

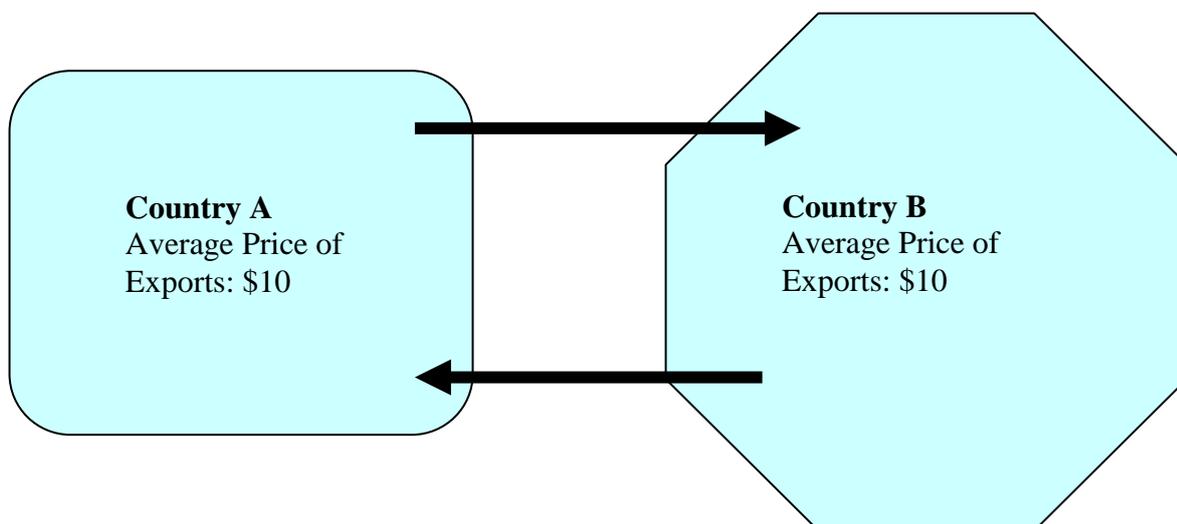
+ Complete the flow chart below.



What happens to the rate of unemployment?

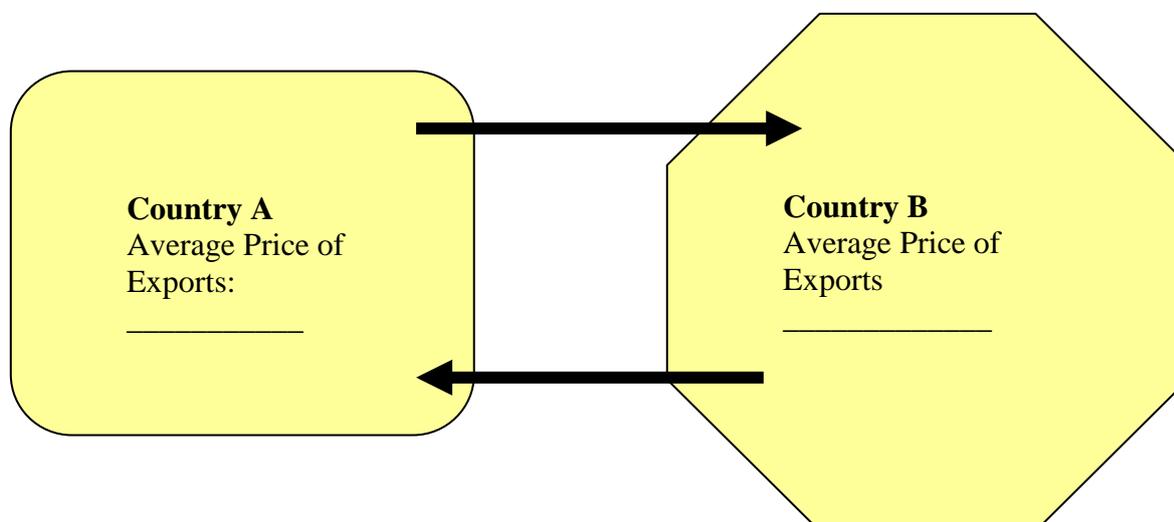
2. If less people are working and less people are spending money then what will be the impact upon the level of Real G.D.P. (National Income) in the economy?

✚ Look at the diagram below and imagine that there are just two nations in the world and that they trade with each other.



✚ Now imagine that country A experiences inflation at a rate of 5% and country B experiences inflation at a rate of 8%.

✚ Calculate the new average price of exports for country A and the new average price of exports for country B. Mark this on the diagram below.



- ✚ What will happen to the level of exports in both nations and how can this be linked to the rate of inflation?

Deflation – Causes and Costs

- 1) Generally speaking, deflation can occur due to one of two reasons. The first type of deflation is known as ‘*bad deflation*’ (Blink and Dorton 2007) and is a result of a fall in aggregate demand. Illustrate and explain this below.



- 5) However, ‘*good deflation*’ can also occur due to improvements in the supply-side of the economy. Illustrate this below and give some examples of the type of policies that may lead to a fall in the average price level.



- ✚ _____
- ✚ _____
- ✚ _____

6) The IB has set essay questions in the past asking students to consider the ‘**costs of deflation**’. The negative aspects of deflation are much more likely to occur when it has resulted from a fall in aggregate demand (‘bad deflation’)

✚ Using the table below, explain the costs of deflation in more detail.

Factor	Explanation
Unemployment	
Investment	

Debtors (think consumers and firms)	
--	--

Causes of Inflation

- ✚ Cost-push inflation
- ✚ Demand-pull inflation
- ✚ The Monetarist explanation

Cost-push inflation occurs due to an increase in the costs of production of firms.

1. How might a firm respond to an increase in its costs so that it maintains its profit margins?

2. In the table below identify why a firm might experience an increase in its costs of production.

Increase in cost	Reason
<i>Petrol/oil</i>	
<i>Imported raw materials</i>	
<i>Tax payments</i>	
<i>Wages</i>	

✚ Cost-push inflation **sometimes** occurs due to supply-side shocks. A supply-side shock is an exogenous increase in costs.

3. Using the diagram on the next page illustrate the effect of an **exogenous** increase in costs.

4. What do you understand by the term **exogenous**?

Price level



Real GDP

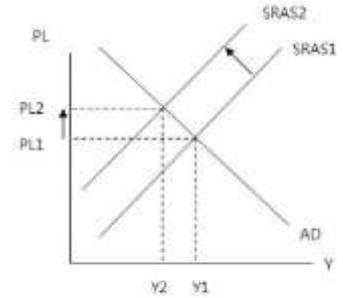


Fig.1. China's cost-push inflation

5. Describe the shift in the aggregate supply curve.

6. Explain why the depreciation of a nation's currency can lead to cost-push inflation. (Illustrate this on the diagram below)

Dollars to the Euro



Quantity of Euros traded

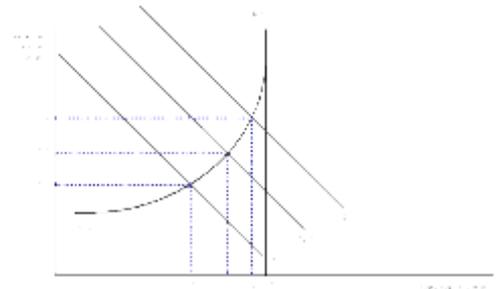
Demand-Pull inflation

7. Demand-pull inflation usually occurs when the economy is operating near to or at its **full employment level** of output
8. At which **stage of the business cycle** are we most likely to witness demand-pull inflation and why?

✚ This type of inflation essentially occurs when demand for goods and services **outstrips/exceeds** supply.

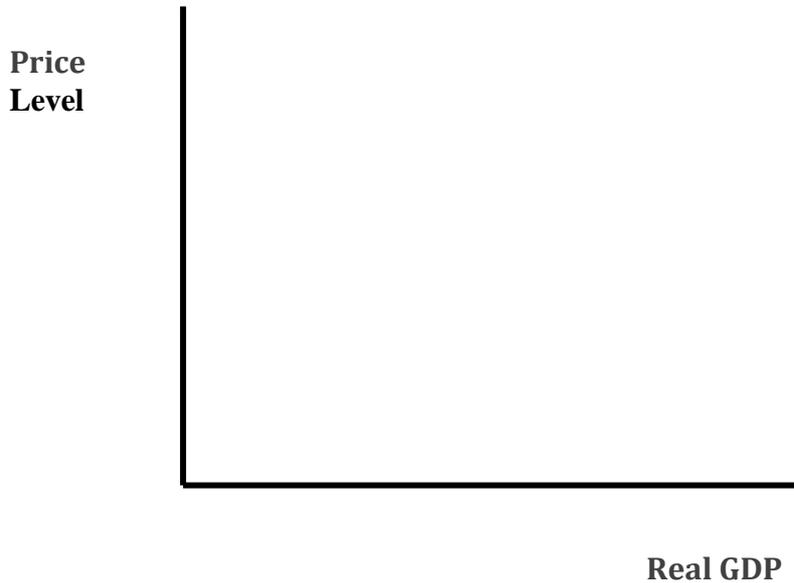
9. Complete the diagram below illustrating how demand-pull inflation occurs

Price level



Real GDP

10. Explain and Illustrate on the diagram on the next page why demand-pull inflation would not occur if there were spare capacity in the economy.



✚ Give a real world example of demand-pull inflation.

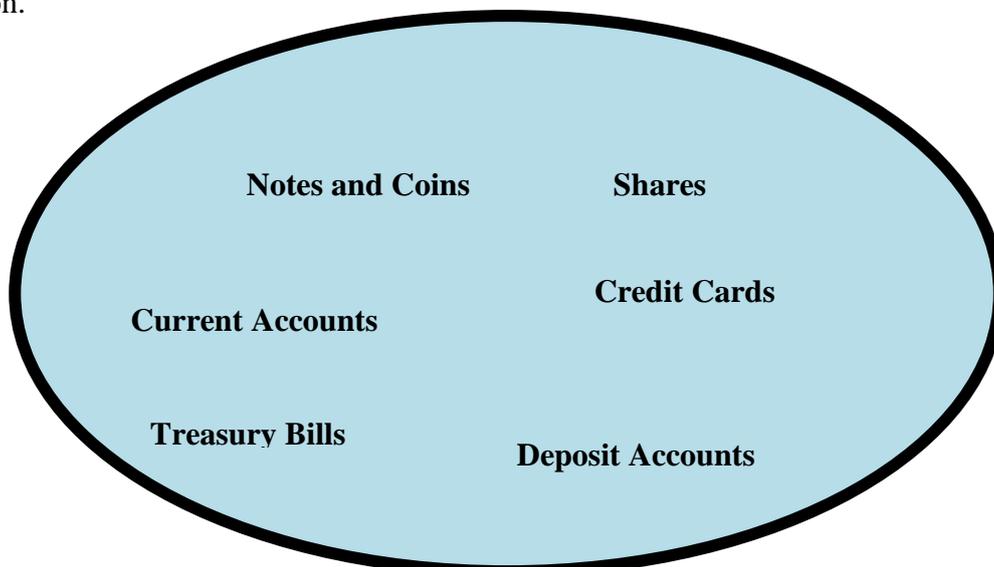
Monetarist inflation (inflation due to excessive monetary growth)

‘Too much money chasing too few goods’

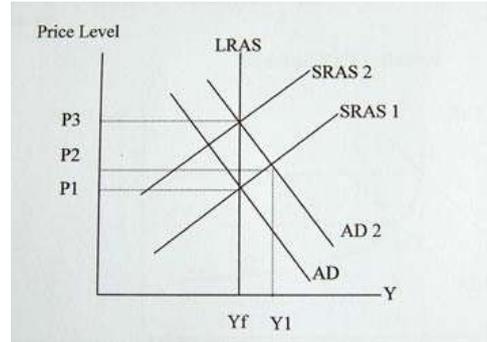
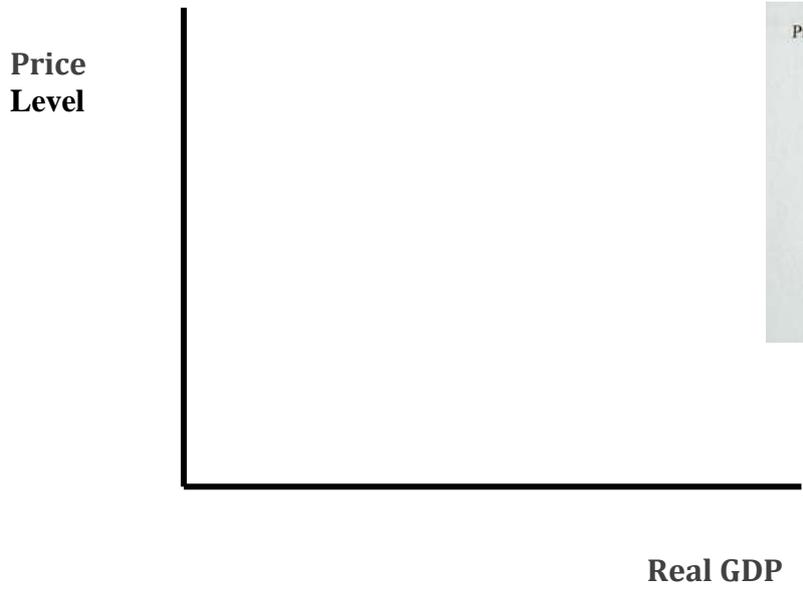
11. What is a **‘Monetarist’**?

12. What is the money supply?

◆ From the list below choose the items that are included within the money supply of a nation.



13. Illustrate the concept of Monetarist inflation on the diagram below.



“Inflation is always and everywhere a monetary phenomenon”

The theory can be explained using the **Fischer equation**

$$MV = PQ$$

$M =$ _____

$V =$ _____

$P =$ _____

$Q =$ _____



14. Using the above equation summarise the monetarist argument on inflation.

This means that if banks lend more money then there will be more _____ and there will be an increase in the _____ of the economy.

15. Give a real world example of Monetarist inflation?



Measures to combat inflation

✚ The solution to rising inflation largely depends upon the **type** of inflation that an economy is experiencing. Hence the first challenge is to identify what factors in the economy are responsible for price rises.



Solutions to cost-push inflation

Solution	Explanation	Drawback
✚ Subsidies to firms		
✚ Fixed/managed exchange rate		
✚ Incomes policies		
✚ Restricting trade union power		
✚ Cutting indirect tax		

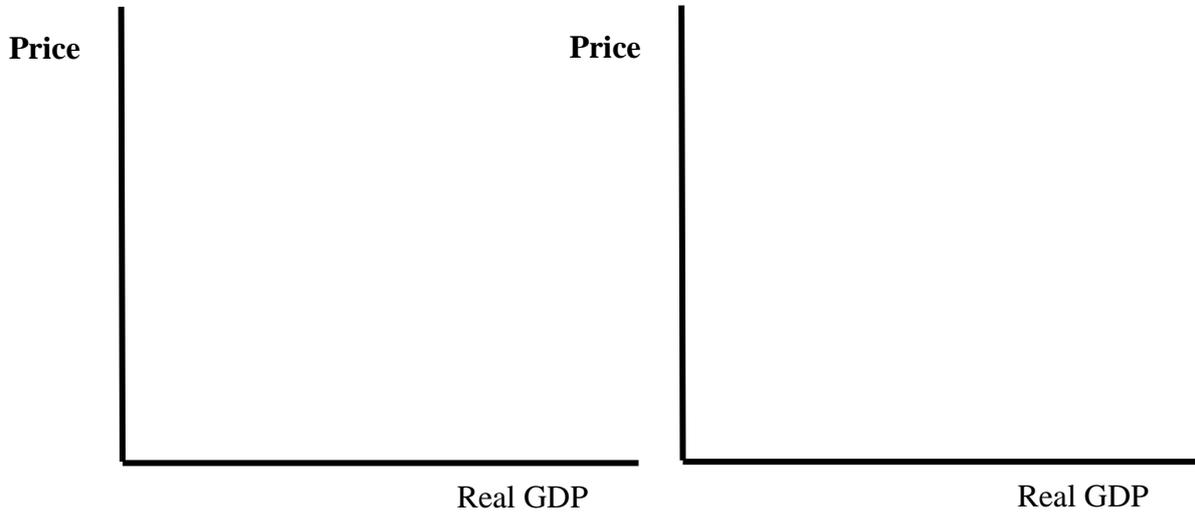
Solutions to demand-pull inflation

1. Contractionary fiscal policy

2. Contractionary monetary policy

3. Supply-side policies

4. Illustrate how these policies would reduce the rate of inflation using a diagram.



5. Why might the implementation of a contractionary fiscal policy to combat rising demand-pull inflation prove problematic?

 **Public opinion**

 **Time lag**



6. Why do most industrialised countries tend to use monetary policy to control the rate of inflation?



7. What are the drawbacks of the contractionary monetary policy measures?

Solutions to monetarist inflation

8. Reduction of the money supply



+ Notes and Coins

+ Credit Controls

+ Money Supply

+ Interest rates

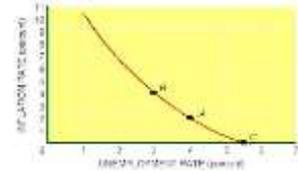
The Phillips Curve

In today's lesson we will be covering the Phillips curve and looking at :

1. The original Phillips curve.
2. How to derive a Phillips curve.
3. Arguments related to the Phillips curve.

1. The original Phillips curve was based on data relating to the rate of change of money wages and the rate of unemployment.

✚ What relationship do you imagine there would be between the rate of change of money wages and the rate of unemployment?



✚ On the graph below plot the Phillips curve.

Rate of
change
of
money
wages

Unemployment rate %

2) Other economists thought that this research gave a good insight into the relationship between inflation and unemployment.

✚ How are changes in wages and changes in prices linked?

3) Using the inflation and unemployment data below can you plot the relationship between the two variables?

Year	Unemployment (% of workforce)	Inflation (% change)
1974	2.0	17.0
1975	3.2	23.5
1976	4.8	15.7
1977	5.1	14.7
1978	5.0	9.5
1979	4.6	13.7
1980	5.6	16.3
1981	8.9	11.2
1982	10.3	8.7
1983	11.1	4.8
1984	11.1	5.0
1985	11.5	5.3
1986	11.5	4.0
1987	10.6	4.3
1988	8.7	5.0
1989	7.3	5.9
1990	7.0	5.5
1991	8.8	7.4
1992	10.1	4.7
1993	10.4	3.5
1994	9.6	2.5
1995	8.8	2.6
1996	8.4	2.7
1997	5.8	3.4

Inflation
%

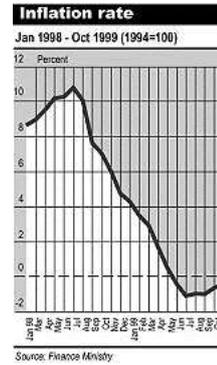
Unemployment %

4) Show the basic shape of the Phillips curve on the diagram below.

Inflation %



Unemployment %



5) If the government decides to **increase government spending** (_____ policy) in order to boost the economy what will happen in the economy? (Illustrate on the diagram **above**)

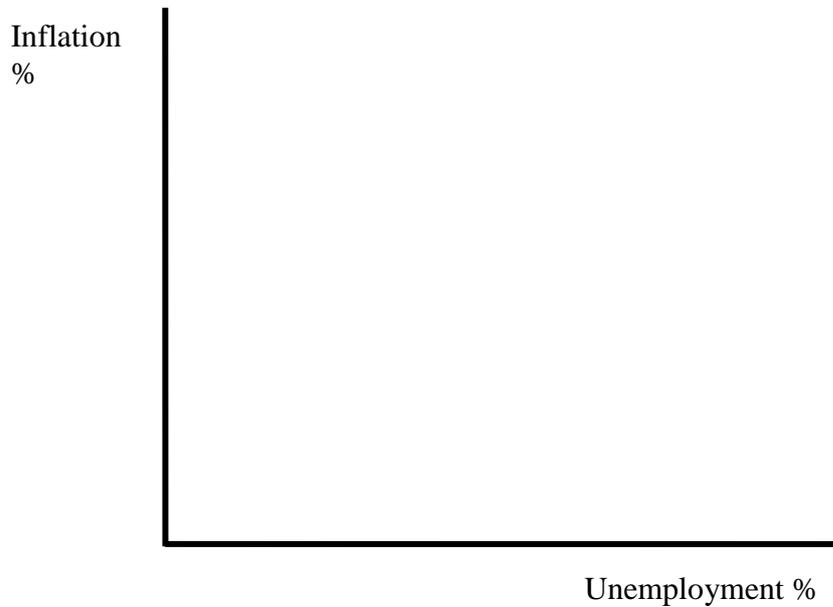
6) The rate of inflation will now be at **4%**. In the short-term workers suffer from a « **Money Illusion** ». They don't realise that in **real terms** their wages have actually :-

7) When they do realise their wages have fallen in **real terms**? What action might they take ?

8) How big an **increase in wages** will the workers demand?

9) What impact will this have on the rate of **inflation**?

10) Illustrate this on the diagram on the next page.

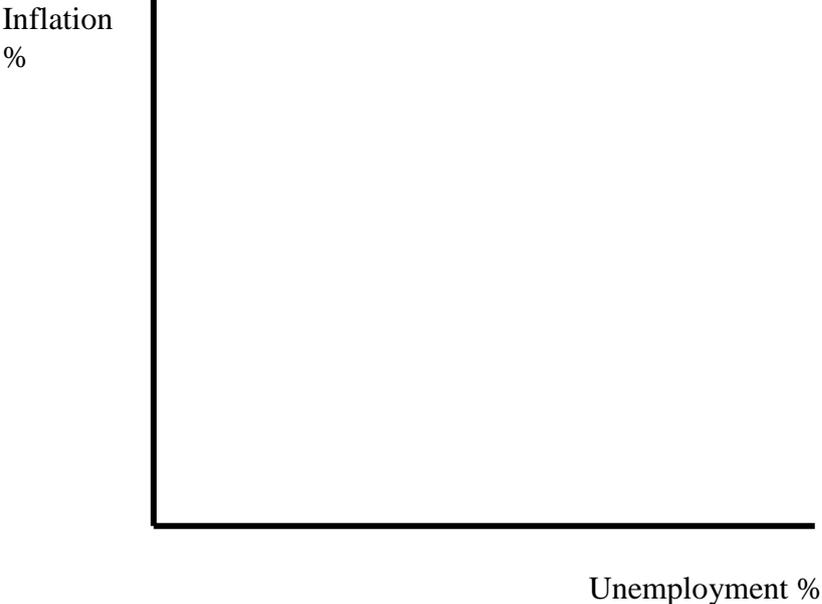


11) If the government tries to increase government spending one more time once the economy is at **point C** what will happen?

12) To what rate of unemployment will the economy **tend**?

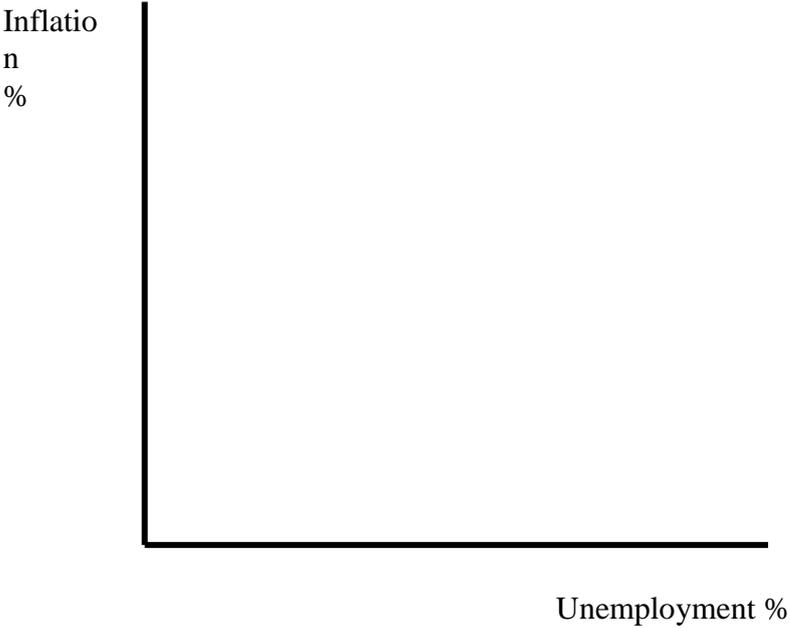
13) What do we call this **rate** of unemployment?

14) On the diagram below illustrate the **Classical Phillips Curve**.



15) How would Classical economists advocate reducing the rate of unemployment?

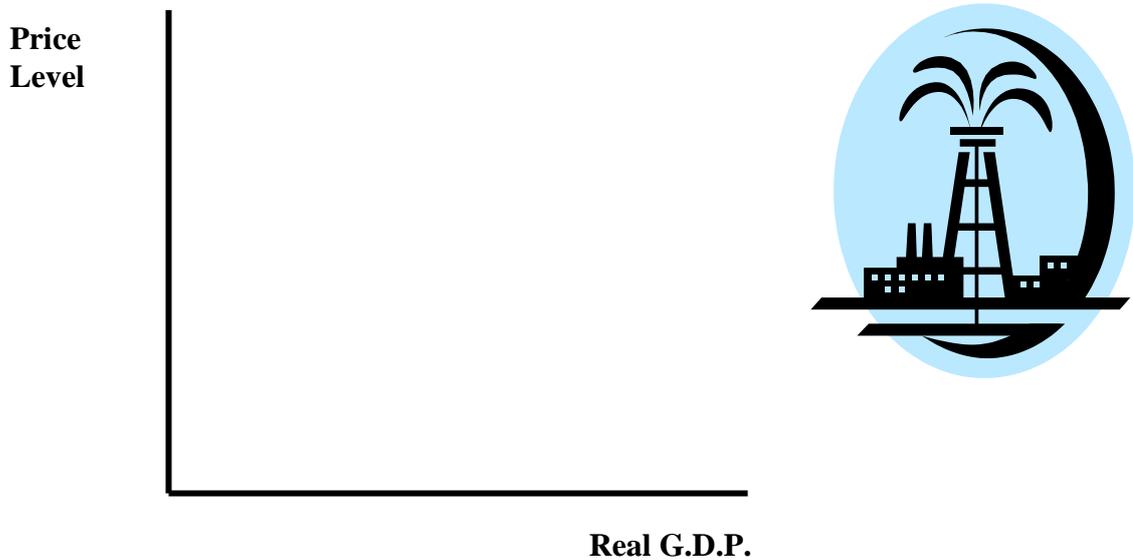
16) Illustrate this on the diagram below.



Stagflation

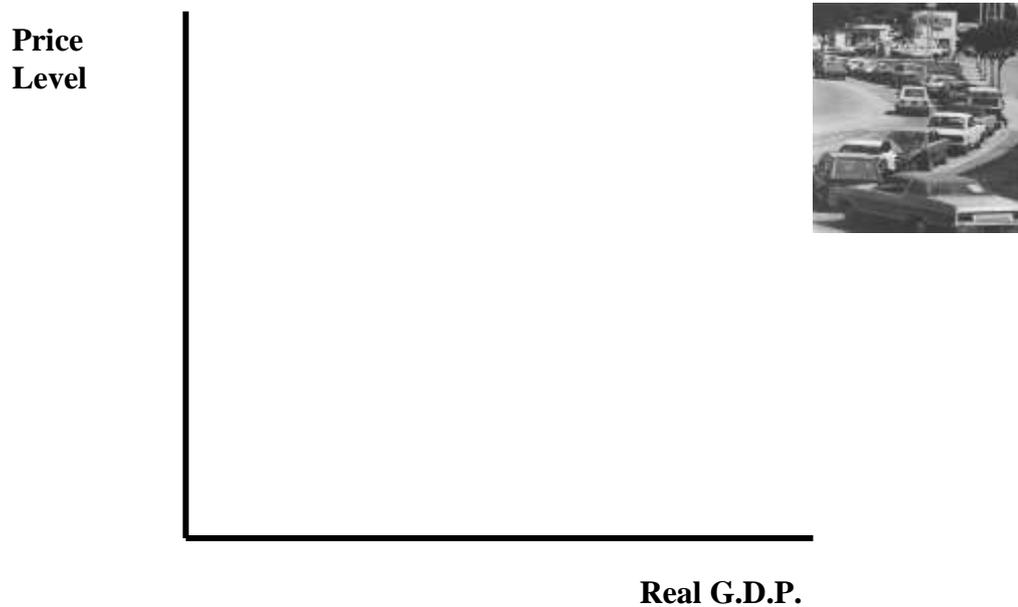
1. What do you understand by the term Stagflation?

2. Draw a diagram to show that one would normally associate rising prices with lower levels of unemployment.



3. What is an external supply-side shock and what shock occurred in the 1970s?

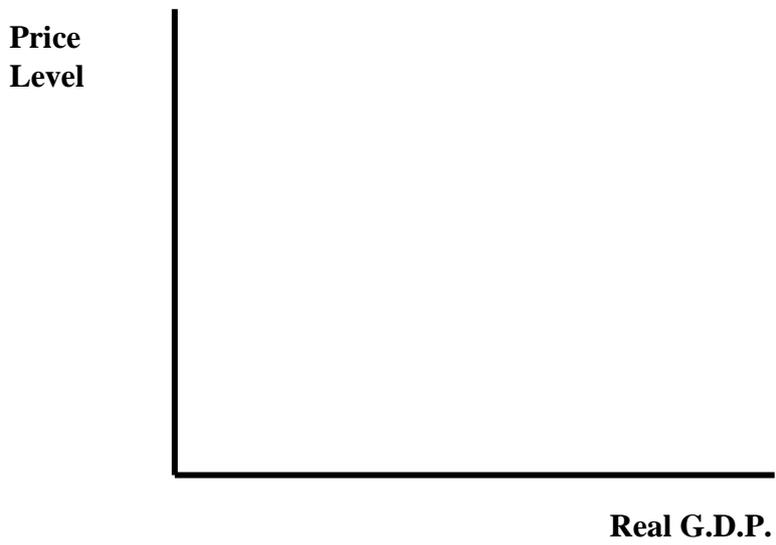
4. Draw a diagram to show what happened to the U.K./U.S. economy when there was a supply-side shock.



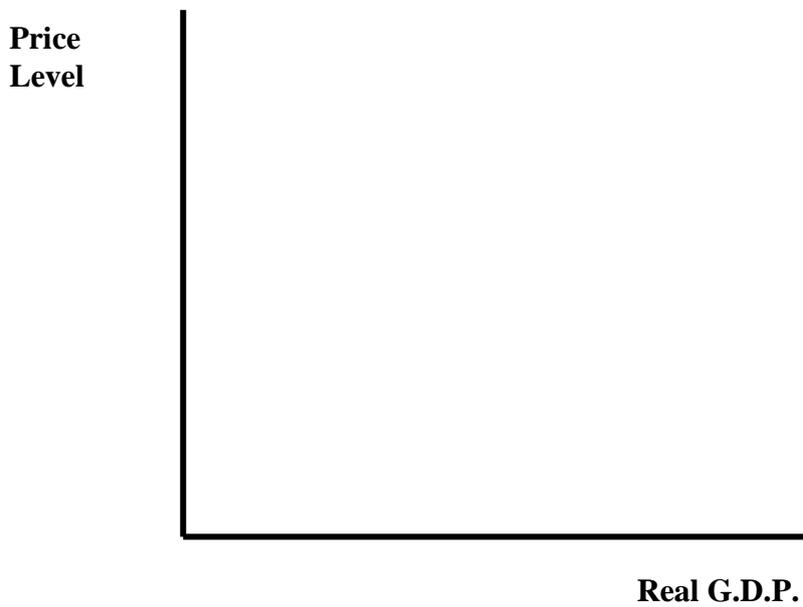
5. Why was there an **increase** in aggregate demand at the end of the 1970's?

6. Would the economy remain at point C?

Classical economists



Keynesian Economists



7. On the Phillips Curve below illustrate the concept of 'stagflation'.

