

2.1 91222 Analyse inflation using economic concepts and models

This achievement standard involves analysing inflation using economic concepts and models.

External: 4 Credits
Achievement Criteria

Achievement	Achievement with Merit	Achievement with Excellence
<ul style="list-style-type: none"> Analyse inflation using economic concepts and models. 	<ul style="list-style-type: none"> Analyse inflation in depth using economic concepts and models. 	<ul style="list-style-type: none"> Analyse inflation comprehensively using economic concepts and models.

- 1 *Analyse inflation* involves:
- identifying, defining or describing inflation concepts
 - providing an explanation of causes of changes in inflation using economic models
 - providing an explanation of the impacts of changes in inflation on various groups in New Zealand society.

Analyse inflation in depth involves:

- providing a detailed explanation of causes of changes in inflation using economic models
- providing a detailed explanation of the impacts of changes in inflation on various groups in New Zealand society.

Analyse inflation comprehensively involves:

- analysis of causes of changes in inflation by comparing and/or contrasting their impact on inflation
- analysis of the impacts of changes in inflation by comparing and/or contrasting the impact on various groups in New Zealand society
- analysis by integrating changes shown on economic models into detailed explanations.

- 2 *Inflation* refers to the issues associated with changes in the general level of prices.

- 3 *Economic concepts* are selected from:

- inflation, disinflation, deflation
- business cycle
- cost-push and demand-pull inflation
- real versus nominal indicators.

- 4 *Models* are selected from:

- the quantity theory of money
- the Aggregate Supply and Aggregate Demand (AS/AD) model (an understanding of how to derive the AS and AD curves is not required).

INTRODUCTION: WHAT IS INFLATION?

Objectives:

- Explain the difference between general price level rises and a price rise in a particular market.
- Define and distinguish between inflation, deflation and disinflation.

PRICES IN PARTICULAR MARKETS.

A rise in price of a particular good or service does not necessarily mean that inflation has occurred. Prices change all the time. The price mechanism is at the heart of any viable economic system. Prices are determined by the relative scarcity of the product and the resources used to produce it. For example we all know that diamonds are more expensive than water. But this is a **paradox of value** because most of us regard water ultimately as the more valuable commodity. The price of diamonds is not so much a reflection of their necessity but their relative scarcity. Water, although essential for life, is relatively abundant and easy to obtain and therefore is relatively cheap. Diamonds though, are relatively scarce in relation to wants and as a result are highly priced.

What is inflation?

Inflation can be defined as an increase in the average or general price level.

When average prices throughout the economy go up, that's **inflation**. The fundamental cause of ongoing inflation is too much money chasing too few goods. Inflation usually happens when the economy is so buoyant that shortages of labour and materials become widespread, and prices in general rise. Then money starts losing its value. Typically, an inflation-linked economic boom is followed by a bust.

If prices rise faster than incomes, then people are worse off. As well, if the interest paid on savings is less than inflation, then the interest earned does not compensate people for the fact that the value of their savings is being eaten away.

Deflation is a decrease in the average price level – or negative inflation.

Disinflation is a decrease in the rate of inflation – there is still inflation, but at a lower or slower rate than before.

e.g In a very simple economy with only one good.

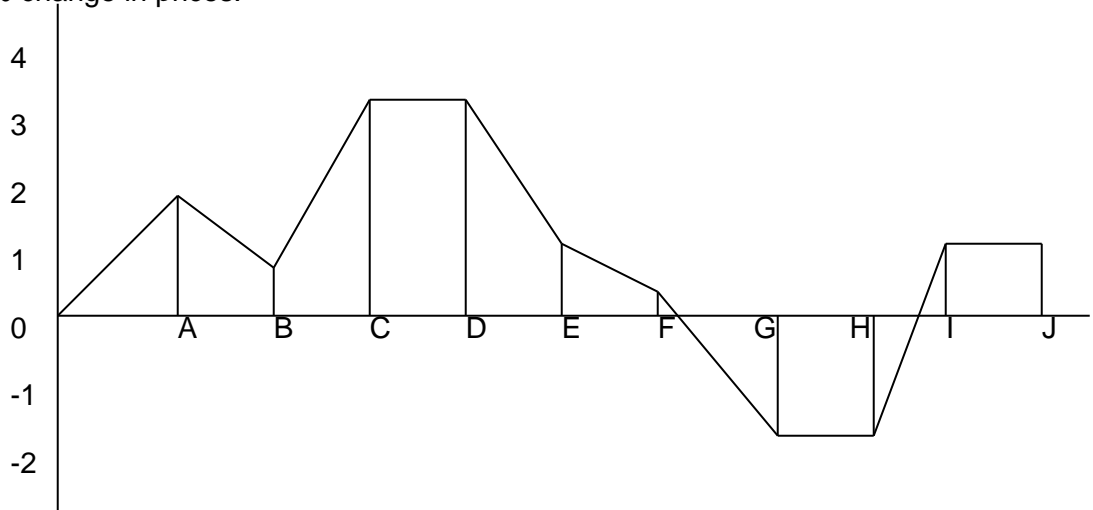
Year	Price of rice (1 kg)	Change in the price of rice (\$/kg)	Change I the price of rice (%)	Explanation
1	\$4.50			n/a
2	\$4.79	\$0.29	6.4%	The price of rice has risen - inflation
3	\$4.96	\$0.17	3.5%	The price of rice has risen again BUT at a smaller rate than the last rise – disinflation.
4	\$5.36	\$0.40	8.1%	Prices have risen and by more than last time – inflation
5	\$5.17	-\$0.19	-3.5%	Prices have fallen – deflation.
6	\$5.04	-\$0.13	-2.5%	Prices have fallen – Deflation.
7	\$5.29	\$0.25	5.0%	Prices have risen again so it is inflation.

<p>To calculate percentage change</p> $\frac{\text{Year 2} - \text{Year 1}}{\text{Year 1}} \times 100$	<p>So for year 3</p> $\frac{4.96 - 4.79}{4.79} \times 100$
	$= 3.5\%$

Question's:

Use the following diagram to answer the questions.

% change in prices.



Which Periods had

Inflation? _____

Disinflation? _____

Deflation? _____

CALCULATING THE EFFECTS OF INFLATION ON PRICES

We can calculate how much the price of a good or service is likely to increase after inflation by multiplying the original price of the good x 1. ?? (the rate of inflation as a decimal. E.g a \$9.50 movie ticket after one year of 10% inflation will be

\$9.50 x 1.10 = \$10.45

The effects of different inflation rates on prices can be seen below.

Year	2%	10%	20%
1	100.00	100.00	100.00
2	102.00	110.00	120.00
3	104.04	121.00	144.00
4	106.12	133.10	172.80
5	108.24	146.41	207.36
6	110.41	161.05	248.83
7	112.62	177.16	298.60
8	114.87	194.87	358.32
9	117.17	194.87	429.98
10	119.51	214.36	515.98

HYPERINFLATION

Hyperinflation is an extreme form of inflation, this is where prices rise at a very high rate. Hyperinflation can have a devastating effect on the economy.

Some examples of hyperinflation are:

1. Germany 1920-1923	3.25 million percent
2. Russia 1921-1924	213 percent
3. Austria 1921-1922	134 percent
4. Poland 1922-1924	275 percent
5. Hungary 1922-1924	98 percent
World War II	
1. Greece 1943-1944	8.55 billion percent
2. Hungary 1945-1946	4.19 quintillion percent
China	
1. Shanghai 1949-1950	

The Worst Episode of Hyperinflation in History: Yugoslavia 1993-94

Under Tito Yugoslavia ran a budget deficit that was financed by printing money. This led to rate of inflation of 15 to 25 percent inflation per year. After Tito the Communist Party pursued progressively more irrational economic policies. These irrational policies and the breakup of Yugoslavia (Yugoslavia now consists of only Serbia and Montenegro) led to heavier reliance upon printing or otherwise creating money to finance the operation of the government and the socialist economy. This created the hyperinflation.

By the early 1990s the government used up all of its own hard currency reserves and proceeded to loot the hard currency savings of private citizens. It did this by imposing more and more difficult restrictions on private citizens access to their hard currency savings in government banks.

The government operated a network of stores at which goods were supposed to be available at artificially low prices. In practice these stores seldom had anything to sell and goods were only available at free markets where the prices were far above the official prices that goods were supposed to sell at in government stores. Delivery trucks, ambulances, fire trucks and garbage trucks were also short of fuel. The government announced that gasoline would not be sold to farmers for fall harvests and planting.

Despite the government desperate printing of money it still did not have the funds to keep the infrastructure in operation. Pot holes developed in the streets, elevators stopped functioning, and construction projects were closed down. The unemployment rate exceeded 30 percent.

The government tried to counter the inflation by imposing price controls. But when inflation continued the government price controls made the price producers were getting ridiculously low they stopped producing. In October of 1993 the bakers stopped making bread and Belgrade was without bread for a week. The slaughter houses refused to sell meat to the state stores and this meant meat became unavailable for many sectors of the population. Other stores closed down for inventory rather than sell their goods at the government mandated prices. When farmers refused to sell to the government at the artificially low prices the government dictated, government irrationally used hard currency to buy food from foreign sources rather than remove the price controls. The

Ministry of Agriculture also risked creating a famine by selling farmers only 30 percent of the fuel they needed for planting and harvesting.

In October of 1993 they created a new currency unit. One new dinar was worth one million of the old dinars. In effect, the government simply removed six zeroes from the paper money. This of course did not stop the inflation and between October 1, 1993 and January 24, 1995 prices increased by 5 quadrillion percent. This number is a 5 with 15 zeroes after it.

The social structure began to collapse. Thieves robbed hospitals and clinics of scarce pharmaceuticals and then sold them in front of the same places they robbed. The railway workers went on strike and closed down Yugoslavia's rail system.

In a large psychiatric hospital 87 patients died in November of 1994. The hospital had no heat, there was no food or medicine and the patients were wandering around naked.

The government set the level of pensions. The pensions were to be paid at the post office but the government did not give the post offices enough funds to pay these pensions. The pensioners lined up in long lines outside the post office. When the post office ran out of state funds to pay the pensions the employees would pay the next pensioner in line whatever money they received when someone came in to mail a letter or package. With inflation being what it was the value of the pension would decrease drastically if the pensioners went home and came back the next day. So they waited in line knowing that the value of their pension payment was decreasing with each minute they had to wait in line.

Many Yugoslavian businesses refused to take the Yugoslavian currency at all and the German Deutsche Mark effectively became the currency of Yugoslavia. But government organizations, government employees and pensioners still got paid in Yugoslavian dinars so there was still an active exchange in dinars. On November 12, 1993 the exchange rate was 1 DM = 1 million new dinars. By November 23 the exchange rate was 1 DM = 6.5 million new dinars and at the end of November it was 1 DM = 37 million new dinars. At the beginning of December the bus workers went on strike because their pay for two weeks was equivalent to only 4 DM when it cost a family of four 230 DM per month to live. By December 11th the exchange rate was 1 DM = 800 million and on December 15th it was 1 DM = 3.7 billion new dinars. The average daily rate of inflation was nearly 100 percent. When farmers selling in the free markets refused to sell food for Yugoslavian dinars the government closed down the free markets. On December 29 the exchange rate was 1 DM = 950 billion new dinars.

At the end of December the exchange rate was 1 DM = 3 trillion dinars and on January 4, 1994 it was 1 DM = 6 trillion dinars. On January 6th the government declared that the German Deutsche was an official currency of Yugoslavia. About this time the government announced a new new Dinar which was equal to 1 billion of the old new dinars. This meant that the exchange rate was 1 DM = 6,000 new new Dinars. By January 11 the exchange rate had reached a level of 1 DM = 80,000 new new Dinars. On January 13th the rate was 1 DM = 700,000 new new Dinars and six days later it was 1 DM = 10 million new new Dinars.

The telephone bills for the government operated phone system were collected by the postmen. People postponed paying these bills as much as possible and inflation reduced their real value to next to nothing. One postman found that after trying to collect on 780 phone bills he got nothing so the next day he stayed home and paid all of the phone bills himself for the equivalent of a few American pennies.

Here is another illustration of the irrationality of the government's policies. James Lyon, a journalist, made twenty hours of international telephone calls from Belgrade in December of 1993. The bill for these calls was 1000 new new dinars and it arrived on January 11th. At the exchange

rate for January 11th of 1 DM = 150,000 dinars it would have cost less than one German pfennig to pay the bill. But the bill was not due until January 17th and by that time the exchange rate reached 1 DM = 30 million dinars. Yet the free market value of those twenty hours of international telephone calls was about \$5,000. So the government despite being strapped for hard currency gave James Lyon \$5,000 worth of phone calls essentially for nothing.



GERMANY IN THE 1920's

After the first world war, inflation soared in Germany. Wholesale prices rose by 140% in 1921, and then by 4,100% in 1922. Paper money was so plentiful that bundles of notes often littered the streets – they were worth no more than the usual scattering of sand and stones. As soon as workers were paid their weekly wage, they wet out and spend it before it completely lost value. The black markets which soon became common place required payment in goods rather than currency. Between December 1922 and November 1923, the government implemented reforms which finally broke the inflationary spiral. However, within that same period (before the effects of the reforms were felt) inflation increased even further, with wholesale prices rising by almost 100,000,000%. During the period of hyperinflation people often has to resort to barter to obtain goods and services – he money had become useless as a means of exchange.

HUNGARY IN 1945-46

Between 1945 and 1946, Hungary faced one of the worst hyperinflation situations yet experienced. The rate of inflation averaged about 20,000% per month in one year (At that rate, you could go to Mc Donalds today for a hamburger for 95c, and then go again a month later and pay \$191 for the same hamburger).

In December 1945, price increased further by a massive 42 quadrillion percent (that is 42,000,000,000,000,000,000,000,000,000%) Under such extreme conditions, money became totally worthless. Workers demanded to be paid in foreign currencies or in real goods, as holding cash would have proved to be a liability rather than an asset.

Questions:

1. What seem to be the main factors contributing to hyperinflation? _____

2. What are some of the effects of hyperinflation? _____

3. Why do consumers often resort to barter as a means of exchange? _____

4. How have the governments tried to combat inflation? _____

Real and nominal returns

A return on an investment is the extra money you make, over and above what you put in in the first place. It's usually expressed as a percentage. If you put in \$100, and at the end of the year you have \$106, your return is 6 per cent.

Returns can be interest, dividends, rental income or any other payments received. They also include capital gain - how much more the investment itself is worth at the end than at the beginning.

When you're trying to decide whether a return is good, it helps to understand the difference between a **nominal** return and a **real** return.

Nominal numbers are before adjusting for inflation. They're the numbers we usually use, for everyday purposes, when we talk about prices, growth and so on.

Real numbers are after adjusting for inflation. High inflation can badly distort growth or trends. When we use real numbers, we remove that distortion, to show what's *really* happening to the value of things.

For example, if you buy your house for \$100,000 and sell it a year later for \$110,000, you've made a nominal gain of \$10,000, or 10 per cent.

But if inflation during that year was 7 per cent, subtract the 7 from the 10. Your real gain, after taking inflation into account, is 3 per cent. The rest of the gain is unreal, because it doesn't get you any further ahead in terms of buying goods and services with your money.

(A note for the mathematicians: This arithmetic is only approximately right. But it's close enough for most purposes.)

In the current low-inflation times, with nominal returns on many investments much lower than a decade ago, you might feel you're not doing as well as you used to. But don't be fooled.

In times of high inflation, the value of your money is being whittled away, year by year. You will want a higher return from that money to compensate for this loss of value. Likewise, the companies and financial institutions that provide the returns are willing to pay more, as they are making more nominal dollars as prices rise.

With wage increases inflation also has an effect.

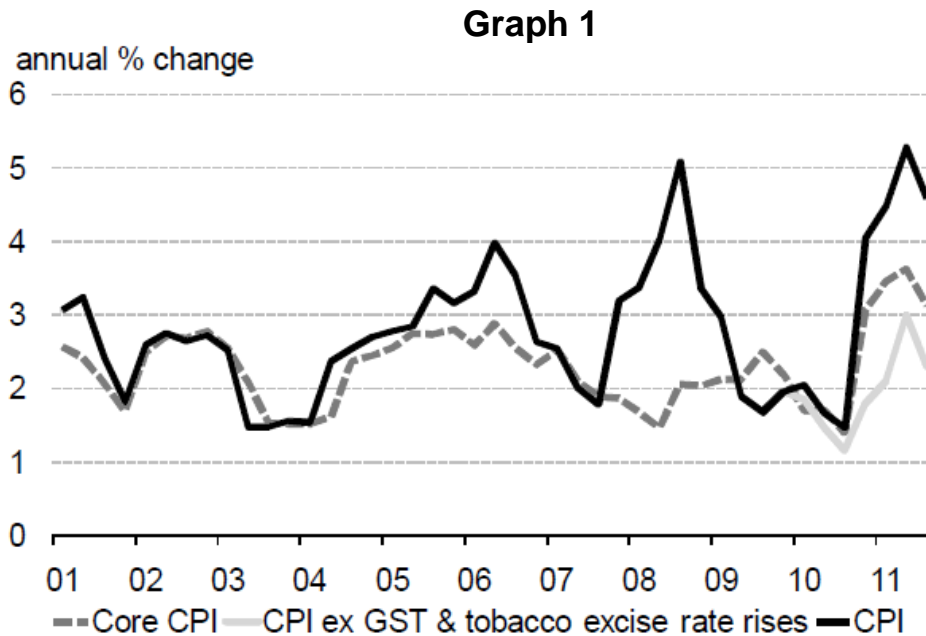
If the nominal wage increase is 5% a worker on \$500 a week is getting an extra \$25 per week in the hand. That is the nominal figure.

However if inflation was 4% then the **real** wage increase is only 1% and the worker is only really getting an extra \$1 a week.

Nominal wages are _____

Real wages are _____

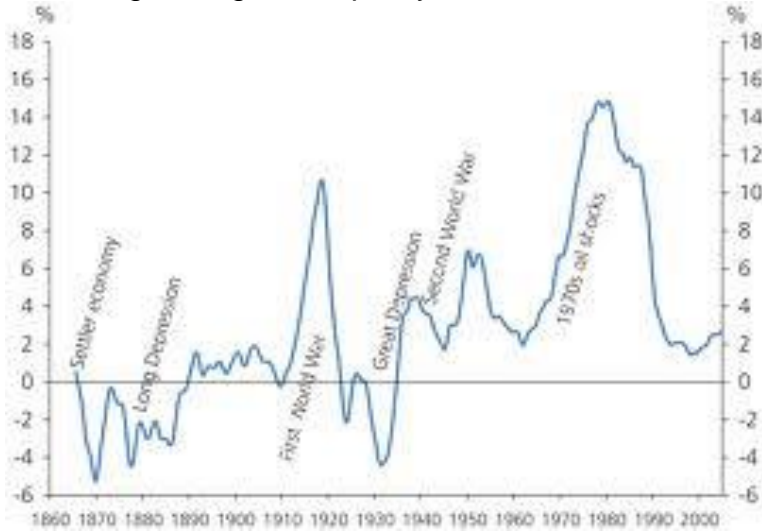
THE CASE OF INFLATION IN NEW ZEALAND



If you look back, low inflation is normal for New Zealand during peace time. Over the last 120 years, inflation below 5 per cent was common, and periods of inflation were offset by periods of deflation.

The high-inflation period from the early 1970s to the late 1980s was historically unusual. But it lasted long enough that we got used to it, allowing for it - and in some cases taking advantage of it - when making decisions to do with money.

Inflation also does long-term damage to the economy. When money is losing its value, businesses and investors have more difficulty making contracts, especially where contracts have to last over time, eg employment contracts and borrowing. This discourages long-term, quality investment in the nation's productive capacity.



Inflation was high during the 1970s and the 1980s, peaking at 18.4 per cent per annum in 1980.

Recently NZ has seen a sustained period of relatively low inflation.

Questions:

1.

(a) Define inflation

(b) Why is the increase in price of one item, such as retail electricity, not necessarily considered to be inflation?

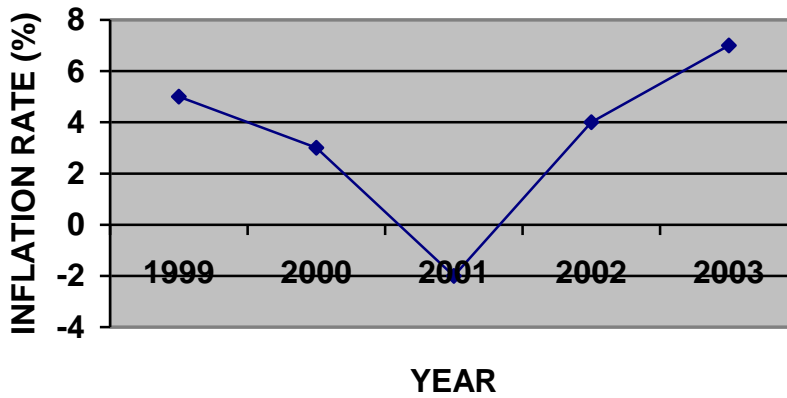
2.

(a) If nominal wages increase by 4.0% and the CPI by 5.0%. What has happened to real wages?

(b) For your answer for (a) to a consumer's purchasing power?

3. Use the Graph below to answer the questions (a) to (c).

INFLATION RATE IN QUASILAND



(a) In which year(s) was there disinflation?

(b) In which year(s) was there an increase in the rate of inflation?

(c) In which year was there deflation?

4. Complete the table below to determine if there has been inflation, deflation or disinflation.

Year	Price of good A	Change in price of good A	% change in price of good A	Explanation.
1	\$12.50	-	-	-
2	\$15.00			
3	\$16.00			
4	\$11.00			
5	\$12.00			

5. Define the following terms.

a) Inflation_____

b) Deflation_____

c) Disinflation_____

d) Nominal value_____

e) Real value_____

Measuring Inflation Using Price Indexes:

Objectives:

- Explain how inflation is measured.

Inflation is an increase in the general price level, which means we need to find a way to incorporate all individual prices. Very different products and price ranges have to be incorporated. The price of chocolate, a car and a house all have to be measured in the same survey. The prices of a range of products in an economy must be collected again and again so that price changes can be measured.

It is the percentage change in the price level more than the dollar change that is more important. To help us to compare the price of different goods and even to compare price changes between years we use index numbers.

Real and Nominal Values Nominal value refers to the face value of something. The current price of a good or service is its nominal value. Real values refer to how much of a good there actually is, or how much can be purchased. Real values are inflation adjusted in that they remove price changes.

e.g.

If Sean's wages were \$100 per week and with that money he could buy 2 shirts then the nominal value of Sean's wages is \$100. However if inflation occurred and the price of the shirts doubled then the nominal value of Sean's wages is still \$100 but he can now only buy one shirt - the real value of his wages is only \$50, Sean's wages can now only buy half as much.

How is inflation measured in New Zealand?

The Consumers Price Index (CPI)

The Consumer price Index is compiled by the Department of Statistics.

Prices of a wide variety of goods and services are collected by Statistics New Zealand (SNZ). A price index measures the change in price of a fixed basket of goods and services between two time periods. The most well known index is the Consumers Price Index (CPI) which measures household inflation. Other indexes, which measure inflation of various sectors of the economy are the

- Capital Goods Price Index, measures the change in price of capital assets bought by producers e.g. ovens, buildings etc.
- Farm Expenses Price Index, measures the change in input costs for NZ farming industry. E.g, fertiliser, dip, drench etc.
- Food Price Index, measures the change in price of food.
- Labour Cost Index, measures the change in price of labour costs or wages.
- Producers Price Index measures the changes in the general level of prices for the productive sector e.g. raw materials, fuels and electricity.

The simplest way to think of the CPI is as a measure of the total cost of goods and services purchased by New Zealand consumers. Price changes of particular goods and services will alter the total cost. The Consumers Price Index measures this change over time.

Using a more precise definition, the CPI measures the changing cost over time of the goods and services purchased in New Zealand in a specified base period by private, New Zealand-resident households, regardless of the location of the supplier.

Where possible, prices are collected for exactly the same goods and services each period. This ensures that changes in the cost of the goods and services shown by the CPI are not due to changes in the quantity or quality of the goods and services purchased. The CPI reflects only "pure" price changes.

How the CPI is organised?

Classification The goods and services covered by the CPI are classified into nine groups, 21 sub-groups and 69 sections, so that similar goods and services are grouped together.

Nine Groups The nine groups in the New Zealand CPI are:

- Food
- Housing
- Household Operation
- Apparel
- Tobacco Products and Alcoholic Drinks
- Transportation
- Personal and Health Care
- Recreation and Education
- Credit Services.

21 Sub-Groups

The 21 published sub-groups are:

- fruit and vegetables
- meat, fish and poultry
- grocery food, soft drinks and confectionery
- meals away from home and take-away food
- dwelling rentals
- home ownership
- energy
- household appliances & furnishings
- household supplies and services
- clothing
- footwear
- public transport
- private transport
- cigarettes & tobacco
- alcoholic drinks
- personal goods and services
- health care
- stationery, books, magazines and newspapers
- leisure and recreation
- education and child care
- financial & credit services charges.

Consumers Price Index Base: June 1999 Quarter (=1000)

Subgroups	June 2000	June 2001
Restaurant meals and ready-to-eat-food	1016	1054
Household appliances and furnishings	996	1043
Clothing	1005	1022
Footwear	1000	1006
Alcoholic drinks	1015	1041
Stationery, books, magazines and newspapers	1008	1066
All Groups	1020	1053

1. What is the difference between a general price rise and a price rise in a particular group? _____

Items The existing index covers the prices of approximately **700** regimen items, covering expenditure on food, housing, household operation, apparel and transport, as well as a wide range of other goods and services.

Urban Areas Prices are surveyed in 15 urban areas throughout New Zealand.

During the 1980s, smaller centres were progressively dropped from the price surveys.

Importance of Items in the CPI

Relative Importance The impact of a particular item's price change on the overall change in the CPI depends on the relative importance of that item to consumers in general.

For example, because New Zealanders spend more on petrol than on newspapers, a 2 percent rise the price of the petrol would be expected to have a greater impact on the CPI than a 20 percent rise in the price of newspapers.

Weights

Weights To ensure that the prices of goods and services on which consumers spend relatively more of their total expenditure have the greatest influence, on the CPI, the index is calculated using weights.

Expenditure on a particular good or service as a proportion of total household expenditure is calculated, to give the **relative importance** or "weight" of that item in the CPI.

Since some items are relatively more important in overall expenditure when compared to other we weight items based upon their relative importance. More important / purchased items are given a higher weighting and less important items are given a lower rating.

Data Sources Data from the Household Economic Survey is used to provide the "weights", but where this data is not considered sufficiently accurate, information is gathered from other sources. Other sources of data consist of:

- Business Censuses
- Professional, Business, Trade, Marketing Organisations and Producer Boards

Weights in the CPI

Consumers Price Index

Population weights

Region

Region	June 2002 quarter
	Percent ⁽¹⁾

Whangarei	3.79
Auckland	32.69
Hamilton	7.99
Tauranga	4.80
Rotorua	2.00
Napier-Hastings	4.96
New Plymouth	2.61
Wanganui	1.38
Palmerston North	3.72
Wellington	11.89
Nelson	3.16
Christchurch	12.23
Timaru	1.62
Dunedin	4.41
Invercargill	2.76

Total **100.00**

Group	Weightings (%)
• Food	17.21
• Housing	19.63
• Household Operation	15.35
• Apparel	4.69
• Tobacco Products and Alcoholic Drinks	16.90
• Transportation	8.72
• Personal and Health Care	8.37
• Recreation and Education	8.56
• Credit Services.	0.58
TOTAL	100.00

The Regimen and Expenditure Weights

- Revisions** **The CPI is reviewed on a major basis every three years.**
As part of the major review, a special advisory committee provides technical advice on the:
- treatment of goods and services in the CPI, including the introduction of new items
 - methodologies used by Statistics New Zealand in the calculation of the CPI.
- Why Revise?** Revisions of the CPI are carried out to ensure that the goods and services being surveyed are relevant to the current spending habits of consumers.
- A major part of a revision includes updating the existing expenditure weights to reflect the changes in the spending patterns of New Zealand consumers.
- When major revisions occur, the index numbers are often rebased. Whilst the index numbers change, the price movements do **not** change.

Limitations of the CPI

- What should be included** By defining the CPI as a measure of the price change of goods and services which households actually buy, decisions about what should be included in the index are made by these households when they make their purchases.

Limitations The CPI is designed to provide only a broad measure of price changes which effect households.

Therefore, the CPI has limitations in that it:

- The rate of inflation calculated by the CPI is unlikely to be the actual rate of inflation experienced by any real individual or household because it is an average.
- The CPI is reviewed every 3 years and so is unlikely to match current expenditure patterns especially toward the end of the three year period. Problems include
 - new products e.g. internet charges were not included until 1999.
 - products that change in popularity or usage.
- It can be difficult to allow for the change in quality of products over time. E.g. computers.
- is not a cost-of-living index
- does not measure consumer satisfaction
- cannot be expected to reflect the price changes experienced by any one consumer
- does not include investment-related goods and services purchased by households

INFLATION: CAUSES OF INFLATION.

Objectives:

- **Explain the relationship between the money supply and the rate of inflation.**
- **Distinguish between cost push and demand pull inflation.**
- **Explain the impact on inflation of factor costs, overseas prices, budget deficits and surpluses, productivity and inflationary expectations.**

The functions of money.

Money has four main functions.

It is..

- \$ A medium of exchange.
- \$ A standard of value.
- \$ A store of value
- \$ A means of deferred payment.

The most important thing about money is that it is a medium of exchange. This means that people no longer need to rely on barter. The main advantage of this is that money does not require a double coincidence of wants. Money is able to act as a good go between. In order for money to be used as a medium of exchange it must be:

- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____
- \$ _____

New Zealand's money unit is the New Zealand dollar (\$NZ or NZD), which is made up of 100 cents.

Currency: Notes and coins.

New Zealand's currency consists of:

Coins: 10c 20c, 50c \$1 and \$2 coins.

Notes: \$5, \$10, \$20, \$50 and \$100.

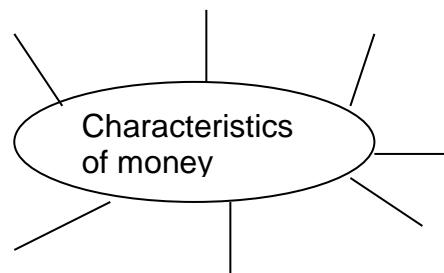
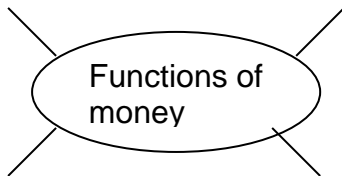
Legal Tender: Money, declared by law to be acceptable within the economy. Other money can be used, but there is no legal obligation to accept it. Legal tender gives money its value by decree.

- \$ **Plastic Money:** These are usually *debit or credit cards*. E.g. ATM cards and EFTPOS and Credit cards.
- \$ **Cheque:** Cheques are not money, nor legal tender, but they can be used to move units of money, purchasing power, from one bank account to another. Cheque accounts are called demand deposits because they are available be drawn on at anytime.
- \$ **EFTPOS:** *Electronic Funds Transfer at Point of Sale*. Funds (in the form of money units) can be electronically moved from one bank account to another~ through a computerised banking system.

Questions:

1. Why are credit cards NOT considered a form of money? _____

2. Complete these star diagrams.



THE QUANTITY THEORY OF MONEY

$$MV = PQ$$

Where

M= _____

V = _____

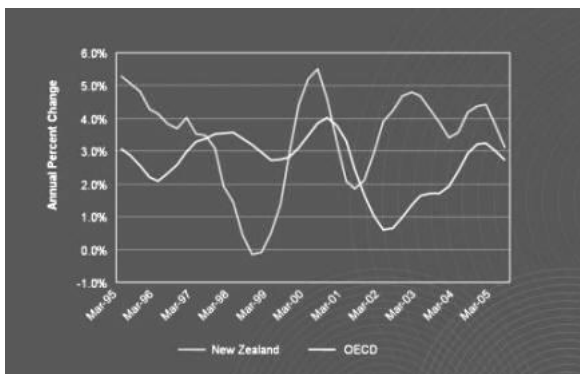
P = _____

Q = _____

The **CRUDE** quantity theory of money assumes the velocity of money (the number of times money is used in a given period) and quantity are constant.

So if we assume the velocity of money and output to be constant then any change in the money supply will have an effect on PRICE.

But as we can see in the graph below – output is not constant and fluctuates over time. This means that the assumption that Q or output remains constant is a weakness.



REAL GROSS DOMESTIC PRODUCT

The **SOPHISTICATED Quantity Theory of money** was developed to overcome this weakness. This version assumes that only the velocity of circulation (V) is held constant. This means that

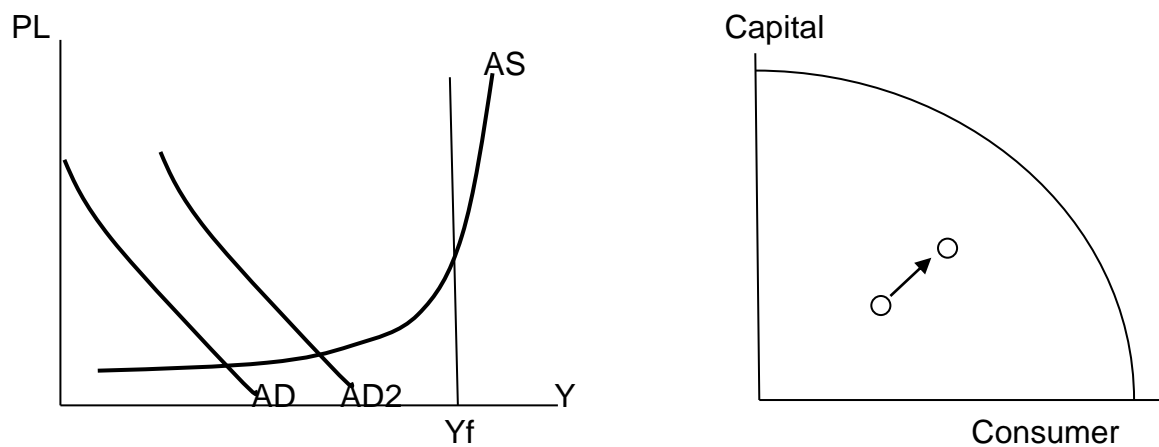
M is proportional to PQ (V being held constant).

Here a change in the money supply (M) will result in a change to PQ . What is not clear is whether P or Q will change or both will change.

The effect of a change in the money supply will depend upon how close to full capacity (or full employment) an economy is.

e.g.

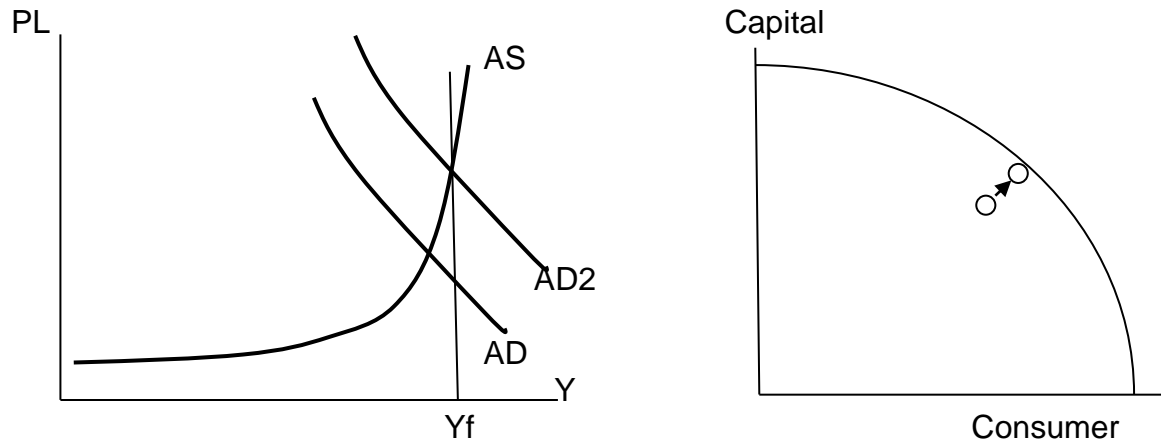
When an economy is not near full capacity there are a lot of unemployed resources / technology and so if the money supply increases (M) this can be absorbed by increases in output and the average price level (inflation) does not increase by as much.



This will mean that output (or quantity) is able to more easily increase and so there is no pressure on prices to increase. ***An increase in the money supply in this situation will not lead to much inflation.***

or

When an economy is near full capacity all resources and technology are being fully utilized and so an increase in the money supply (M) will cause a lot of inflation because output is not able to increase by much causing the average price level to increase.



This will mean that output (or quantity) is unable to increase because the economy lacks the available resources required to produce the extra output and so there is a lot of pressure on prices to increase. **An increase in the money supply in this situation will lead to a lot of inflation.**

Questions:

1. Explain why increasing the money supply by printing more money will not make us richer. _____

2. Explain why increasing the money supply may not always increase prices _____

3. What is the link between the money supply and inflation? _____

4. Which component of the quantity theory of money measures inflation?

5. What does the crude QTOM predict will happen to price if the money supply increases? _____

6. What does the sophisticated QTOM predict will happen if the money supply increases? _____

Whether price or output changes with an increase in the money supply depend on what? _____

7. What component/s of the QTOM do we assume remains constant for The crude theory? _____

The sophisticated theory? _____

8. Explain (**use D.E.R.**) using the QTOM the effect on price level of an increase in the money supply if

a) the economy has a lot of unemployed resources. _____

b) the economy has is close to full capacity. _____

9. What is the term used to describe an increase in the average price level? _____

10. Explain, using the QTOM equation, what would happen to inflation if the money supply increased by 5% and real GDP (output) also increased by 5%.

D _____

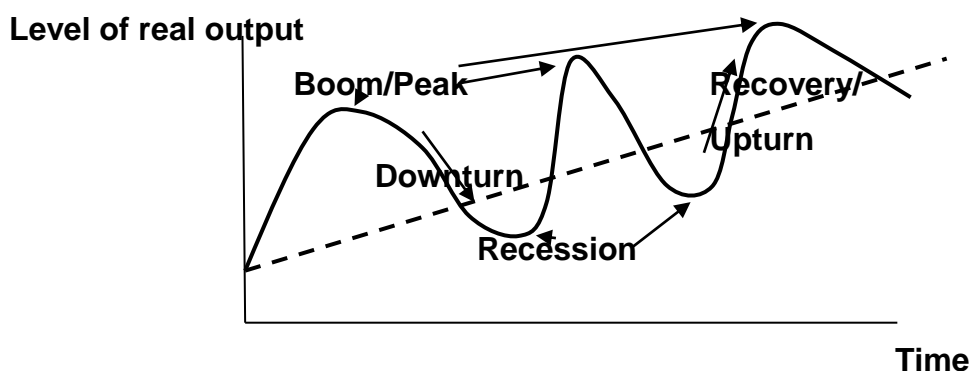
E _____

R _____

11. What is the main relationship the QTOM illustrates? _____

THE BUSINESS CYCLE

The economy changes over time and tends to follow a cyclical pattern. At time the economy is doing well as economic activity and levels of employment increase. At other times the economy slows down and output and employment decrease.



When the economy is in a boom any increase in the money supply (M) will become more inflationary as output (Q) reaches full capacity. After the economy peaks (boom) then economic activity will begin to decline (a downturn / recession). Resources become more available as output falls and unemployment rises. A rise in the money supply (M) may be less inflationary as output is now more easily able to increase.

COST PUSH INFLATION

Aggregate Supply shows the total output (supply) in an economy at each price level.

Any factor that causes Aggregate Supply to fall or shift to the left will cause a rise in the general price level. This is known as **COST PUSH INFLATION**.

What could cause this?

A change in any of the following

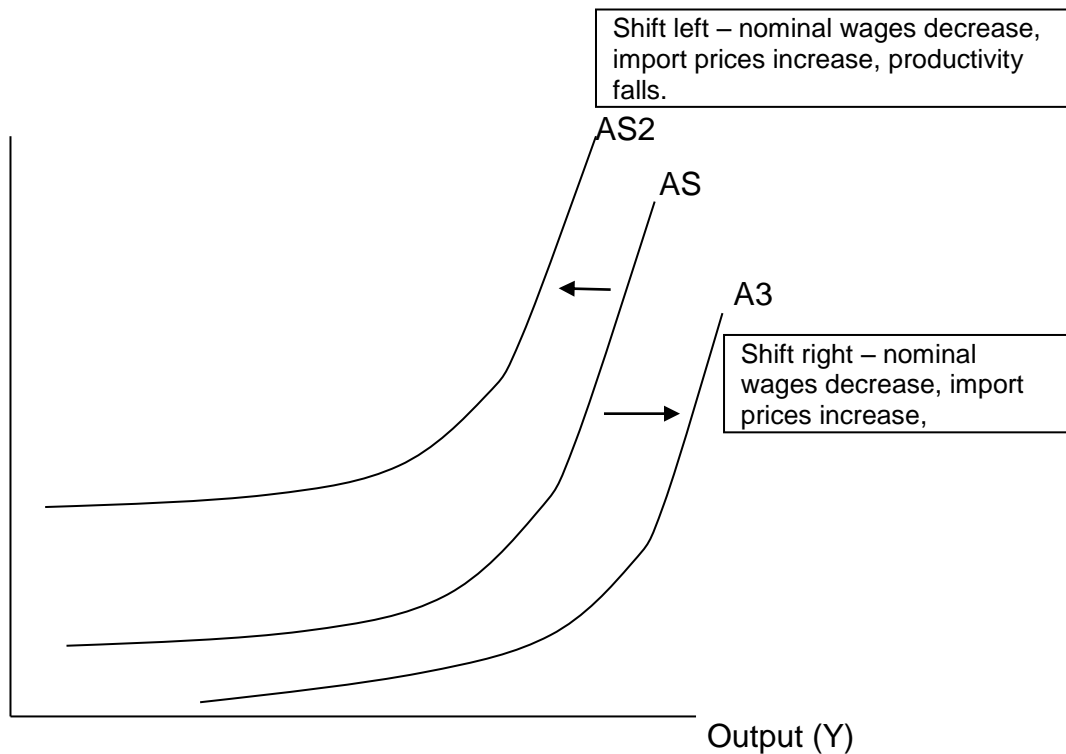
➤ **Nominal Wages** _____

➤ **Import Prices** _____

➤ **Productivity** _____

e.g.

Price Level



DEMAND PULL INFLATION

Aggregate Demand is the total demand for all goods at each price level in an economy.

Any factor that causes Aggregate Demand to increase or shift to the right will cause a rise in the general price level. This is known as DEMAND PULL INFLATION.

What could cause this?

A change in any of the following

Consumption is affected by

- Disposable Income _____

- Interest Rates _____

- Inflationary Expectations _____

- Consumer confidence _____

Government Spending is affected by:

- Revenue _____

- Elections _____

Investment which is affected by:

- Interest Rates _____

- Business Confidence _____

Net exports which are affected by:

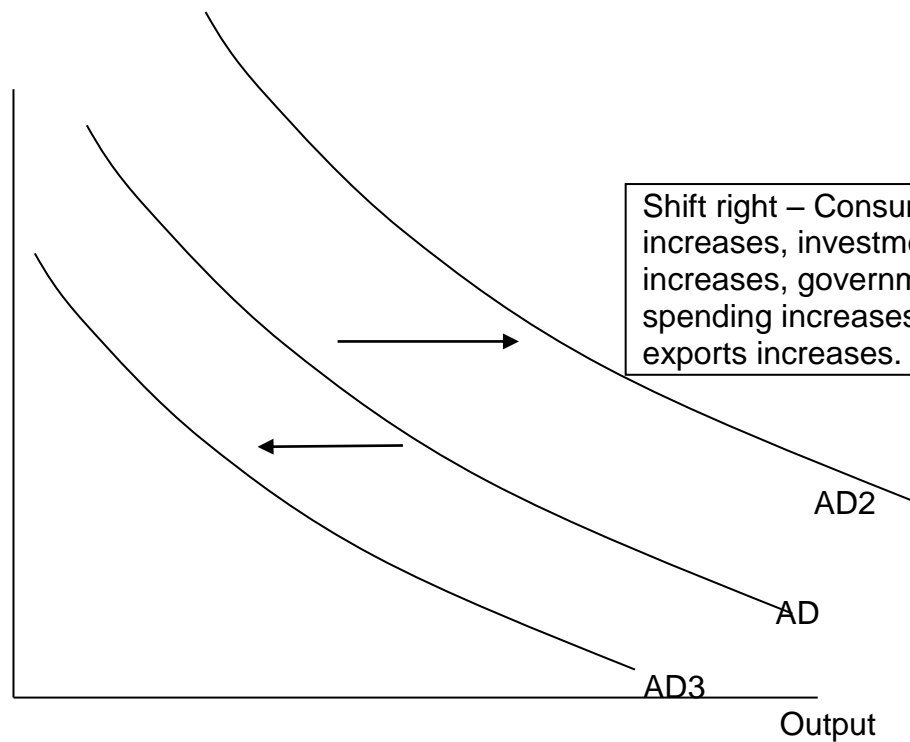
- Exchange Rates _____

- Interest rates _____

- Overseas Demand _____

e.g

Price Level

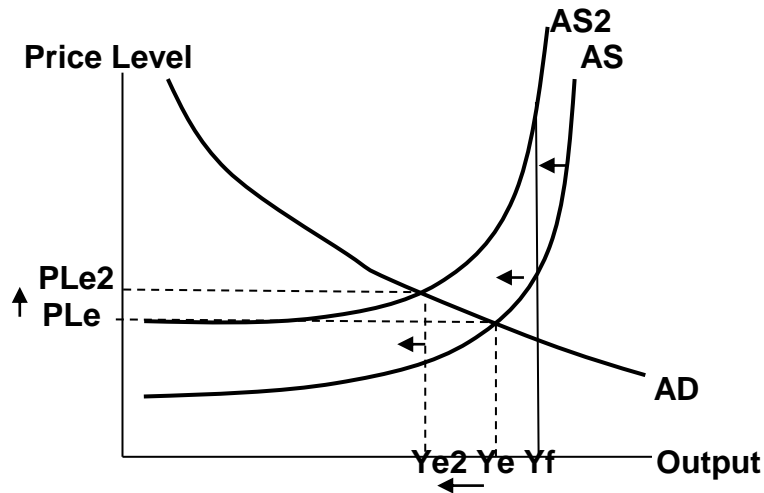


Shift right – Consumption increases, investment increases, government spending increases, net exports increases.

Shift left – Consumption falls, investment falls, government spending falls, net exports fall.

COMBINING AD AND AS

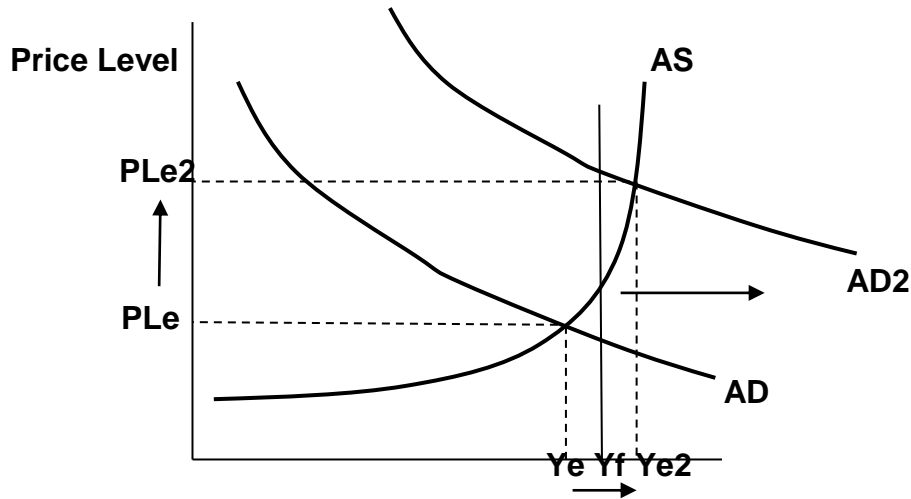
COST PUSH INFLATION



Cost push inflation is caused by an increase in the cost of production in the economy. It will shift the Aggregate Supply curve to the left, causing an increase in the average price level (inflation) and a decrease in output / employment.

The economy moves further away from full employment and there is a worsening of the recessionary gap.

DEMAND PULL INFLATION



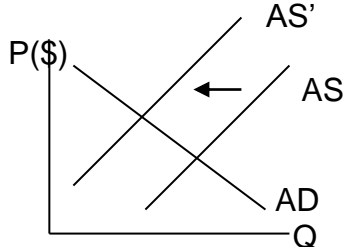
Demand pull inflation is caused by an increase in consumption, investment, government spending or net exports. This causes Aggregate Demand to shift to the right. In this case AD has moved past full employment, which creates an inflationary gap. The average price level (inflation) increases and output / employment increases. In this situation a recessionary gap will become smaller or an inflationary gap will be created.

Questions:

1. Complete the following table.

Event	Effect	AD/AS↑ AD/AS↓ AD/AS not affected.
Interest rates rise	Consumption and investment decrease. Inflation falls.	AD decreases.
New technology		
Investment level rise		
Income tax is reduced		
Business confidence falls		
Nominal wages increase		
The NZ dollar appreciates.		
The price of oil increases.		
Working for families package introduced.		
Productivity gains		
Interest rates increase		
Consumer confidence increases.		
Government runs a budget deficit.		
Increase in overseas commodity prices		

2. Fill in the empty squares. In the last column, draw supply and demand diagrams. The first one has been done for you.

SITUATION	WHICH CURVE OR CURVES MOVE?	POSSIBLE CONTRIBUTION TO COST – PUSH OR DEMAND – PULL INFLATION	COMPLETE SUPPLY AND DEMAND DIAGRAM TO SHOW EFFECTS.
Firms face increased fuel costs.	Supply curve – to the left.	Cost-push inflation.	 <p>The diagram shows a coordinate system with price P(\$ on the vertical axis and quantity Q on the horizontal axis. A downward-sloping demand curve AD is shown. Two upward-sloping aggregate supply curves are shown: the original AS and a new AS' shifted to the left. An arrow points from AS to AS'.</p>
A decrease in the tax rate which increases disposable income.			
Cocoa powder becomes scarce because of crop failure. Meanwhile, because of Easter there is increased demand for chocolate.			
A health advertising campaign works well and fruit and vegetables become very popular.			
New health and safety regulations push up production costs.			

3. What is the effect of demand pull inflation on output levels? _____

4. What is the effect of cost-push inflation on output levels? _____

5. How do output levels affect employment levels? _____

6. Which type of inflation is likely to concern a government more? Why?

7. What is the difference between cost-push and demand-pull inflation?

8. Draw a diagram and explain how the AD and AS model would show inflation caused by an increase in consumer spending.

D

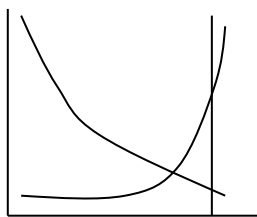
E

R

9. What does the Y_f line show? _____

10. Explain how the AD/AS model can show demand pull inflation.

Show on diagram below.



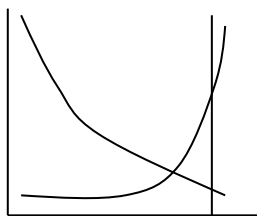
D – AD/AS model = _____ Inflation = _____

E – Because _____

R – The _____ model shows _____

11. Explain how the AD/AS model can show cost push inflation.

Show on diagram below.



D – AD/AS model = _____ Inflation = _____

E – Because _____

R – The _____ model shows _____

12. Complete the following.

Events that cause changes in consumer I _____ or S _____ may increase C _____ expenditure. Changes in firms P _____, C _____ or interest R _____ may increase I _____. Increases in public sector P _____, or T _____ result in an increase in G _____ S _____. Events that results in I _____ in E _____ R _____ or D _____ in I _____ P _____ result in I _____ in N__E____. These changes result in A _____ D _____ I _____ which causes the P _____ L _____ to increase and output to increase.

13. What type of inflation is caused by an increase in AD? _____

14. Name two causes for an increase in the following..

Consumer spending _____

Investment _____

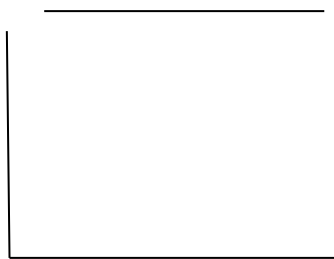
Government spending _____

Net Exports _____

15. State the phases of the business cycle where inflation is most likely to occur. _____

16. Explain why inflationary pressure is most likely to be high during the upswing and boom phases. _____

17. Draw the impact of an increase in export receipts on an AD/AS model below. Label fully.



Fully explain the reasons for the changes you have made to the AD/AS diagram.

D – AD/AS model = _____ Export receipts _____

E – Because _____

R – Due to an increase in export receipts, _____

_____ decreased from _____ to _____ causing inflation.

18. Household spending is on the rise according to the latest data. Firms say they are investing in more capital goods and government reports point to an increase in spending on transfer payments. The export sector is delighted with the recent fall in the value of the NZ dollar. Analysts are worried about the impact this will have on inflation.

a) Describe two factors that could cause net exports to increase. _____

b) Explain the impact of an increase in aggregate demand on the price level.

D - _____

E - _____

R - _____

c) Explain how an increase in household spending could cause demand pull inflation.

D - _____

E - _____

R - _____

d) Explain how an increase in government spending could cause demand pull inflation.

D - _____

E - _____

R - _____

e) Explain how an increase in investment could cause demand pull inflation.

D - _____

E - _____

R - _____

f) Explain how a depreciation of the exchange rate could cause demand pull inflation.

D - _____

E - _____

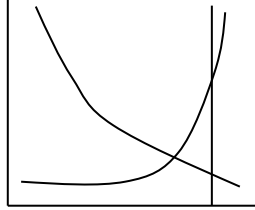
R - _____

19. State the kind of inflation caused by an increase in AS. _____

20. When interest rates are high what happens to the exchange rate? __

Explain how an increase in interest rates could cause AS to increase.

Show this change on the AD/AS diagram below.



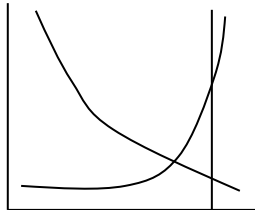
D - _____

E - _____

R - _____

21. Explain how an increase in interest rates could cause AD to decrease.

Show this change on the AD/AS diagram below.

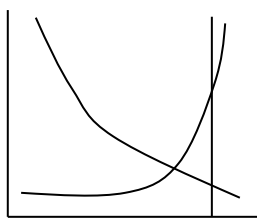


D - _____

E - _____

R - _____

22. Show the overall impact of an increase in interest rates on the diagram below.



Explain the changes you have made.

D - _____

E - _____

R - _____

23. Wages in NZ are increasing. Manufacturers are also worried about the impact of the falling NZ\$. Businesses are also concerned about how much Kiwisaver employer contributions are costing them. Research shows labour productivity continues to fall.

a) State the main reason for a decrease in Aggregate Supply. _____

b) Describe 3 goods / services where a price rise would cause AS to decrease. _____

c) Describe the link between an increase in costs and an increase in prices. _____

d) Explain how an increase in nominal wages could cause a decrease in AS.

D - _____

E - _____

R - _____

e) Explain how a depreciation of the NZ\$ causes the cost of imported raw materials to increase.

D - _____

E - _____

R - _____

f) Explain how an increase in Kiwisaver employer contributions could cause cost push inflation.

D - _____

E - _____

R - _____

g) Explain how a decrease in labour productivity could cause a decrease in AS.

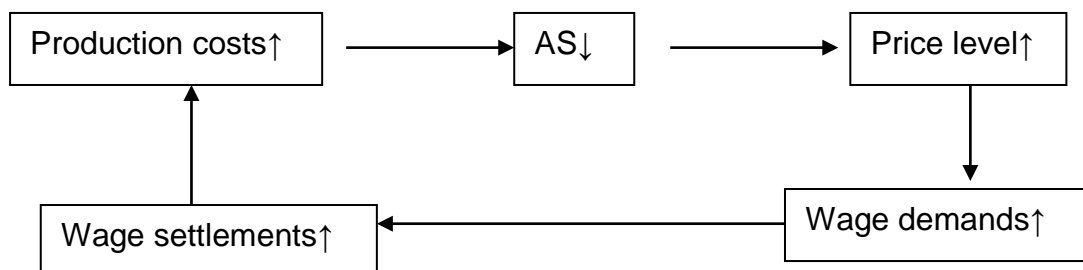
D - _____

E - _____

R - _____

INFLATIONARY EXPECTATIONS

The price level may continue to rise even after a fall in AS or a rise in AD has increased the price level. Once under-way cost-push inflation (or demand pull) can create inflationary expectations.



Workers see that prices are rising and will want a larger wage settlement to compensate for the inflation. This will increase production costs and so prices rise, leading to more inflation.

If people believe that prices will rise and they will have to pay more then they will buy sooner rather than later, because they believe prices will rise and they will have to pay more. This behaviour will increase demand and lead to demand pull inflation.

This can create an inflationary spiral – where prices just keep on increasing.

Question:

An inflation spiral occurs when

- Nominal wages rise to compensate for inflation.
- Because wages have risen there is an increase in consumption.
- Prices rise and workers seek a further rise in nominal wages to compensate etc. etc. etc. etc.

Using the space below, draw an AS/AD model to show the effect of an inflation spiral.

Explain the changes you have made.

D - _____

E - _____

R - _____

THE IMPACT OF INFLATION

Objectives:

- Be able to describe the impact of inflation on firms, households, trade and income distribution.

HOUSEHOLDS

The Key impacts of inflation are on households' borrowing and saving:

Disincentive to save

Inflation erodes the **purchasing power of money**. When prices rise, the same amount of money buys less and less. There is no point in saving money if your \$100 bank deposit may have bought you a pair of jeans in 2011 but in 2012 prices, rises mean that, you can no longer afford them. It would have been better to purchase them back in 2010. In periods of inflation there is no reason to save your money.

Erosion of the value of existing savings.

Any savings you do have are losing purchasing power.

Incentive to borrow.

The amount borrowed, while remaining nominally the same, has fallen in real terms. Many people borrow heavily in times of high inflation to buy property in the hope of making a capital gain and using inflation to decrease the real value of debt.

Real Interest rate.

The real interest rate is the rate of interest you receive after taking into account the impact of inflation. The real interest rate shows the **purchasing power** of the interest you earn.

Inflation also encourages borrowing because of fear of future affordability. Borrowing is also attractive because of the decline in the real value of the amount borrowed. Borrowers know that inflation reduces the real value of the amount they owe so in times of high inflation they can afford to borrow a higher proportion of the purchase price.

Nominal rate of interest – the inflation rate = real rate of interest.

E.g if the nominal rate of interest is 7% and the inflation rate is 5% then the real interest rate is 2%.

Complete the following table

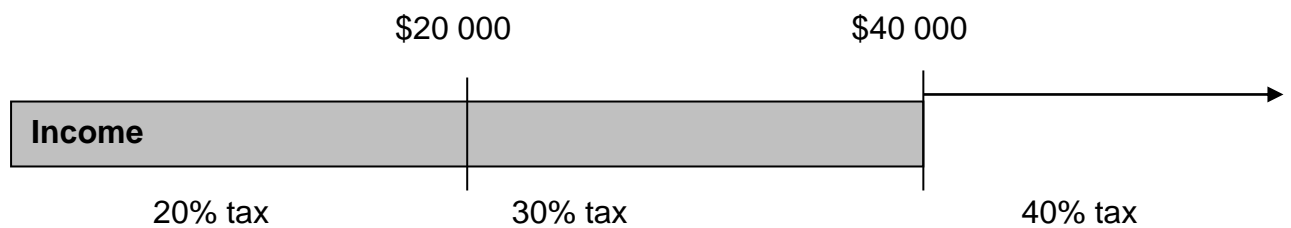
Year	2006	2007	2008	2009	2010	2011
Nominal interest rate	3.0	3.5	2.5		6.75	5.25
Inflation rate	2.4	2.7		0	6.0	8.7
Real interest rate			0.6	3.0		

FISCAL DRAG

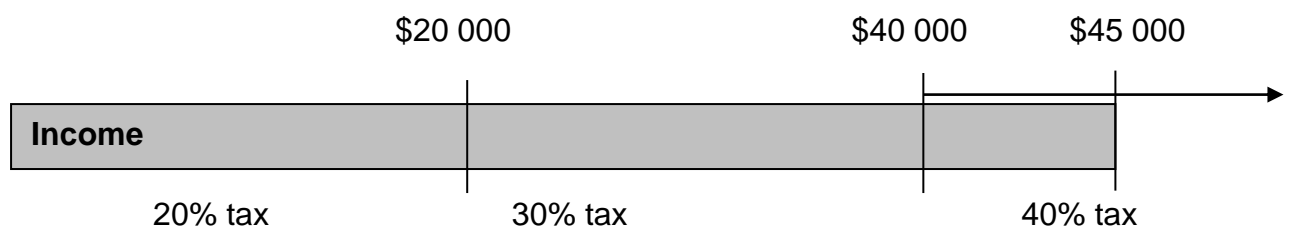
This is where _____

e.g.

INCOME BEFORE INFLATION



INCOME AFTER INFLATION ADJUSTED PAY RISE



The increase of \$5000 is taxed at the higher rate so although your income was adjusted to compensate for the loss of purchasing power due to inflation the tax rate rise has partly undermined this adjustment.

FIRMS

The key impacts of inflation are on **costs, planning** and **investment**. The volatile nature of high inflation means costs and revenues are unpredictable. Firms take a conservative approach to investment and thus levels fall.

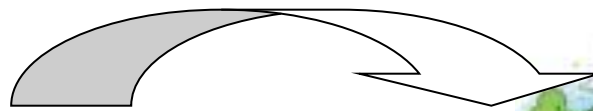
Costs – the cost of the firm _____

Reinvestment – when inflation is high producers feel they have to make a higher return on their investment (to keep real returns higher) for them to be willing to invest in the firm. Similarly shareholders demand a higher return on their shares. Therefore investment may be less during times of high inflation as the risks are higher.

Real to speculative investment



Firm earns 6% real return
On shareholders funds



Shareholders invest in inflation
hedges



Homes appreciate by 8% in real
terms every year due
to high inflation.

Use the diagram above to explain why inflation may make investment less attractive than other forms of making money.

THE EFFECT ON TRADE

Effect on exports - _____

Effect on imports _____

Effect on the Balance of Payments _____

Effect on the exchange rate _____

Income Distribution:

Inflation causes a transfer of wealth from savers to borrowers. People on fixed income such as beneficiaries suffer more than those whose incomes adjust with inflation. The gap between rich and poor often widens.

THE EFFECT OF INFLATION ON INEQUALITY

Income is redistributed from savers to borrowers.

SUMMARY

HOUSEHOLDS - WINNERS	HOUSEHOLDS - LOSERS
Borrowers: Through leveraging the principal reduces in real terms. Also borrowers can take advantage of prices before they rise.	Savers: Real value of savings decline. Prices rise faster than savings can accumulate.
Households with property - Holders of real wealth: the value of assets such as houses tend to keep pace with inflation	Holders of monetary wealth: real value of savings declines.
Incomes that rise faster than inflation: those with skills are in high demand or who are members of a strong union may be able to demand large pay increases.	Incomes that rise more slowly than inflation: Those with little bargaining power or on fixed incomes, will tend to find real incomes falling. Purchasing power falls.
Households who speculate (e.g. buy property) gain income.	Inequality increases. Income distribution becomes more unequal.
	Fiscal Drag reduces disposable income.
FIRMS	FIRMS
Firms trading domestically: these are more able to pass costs onto the consumer.	Firms trading internationally: if our inflation rate is high, overseas competitors gain cost advantages.
Investment loans are cheaper as real amount borrowed falls.	Investment is more expensive as interest rates increase.
Why firms prefer a stable environment. <ul style="list-style-type: none"> - Resources allocated efficiently. - Plan for future with confidence. - Exports stay price competitive. - Costs and prices stay constant. - NZ\$ stays constant. 	Market signals are distorted as investors speculate.
	Difficult to plan for future.
	Costs of production increase as nominal wages rise.
	NZ exports become less competitive.
IMPACTS ON EXPORTERS	IMPACTS ON IMPORTERS
If the inflation rate in NZ is higher than that of our trading partners then NZ exporters costs of production rise so prices rise and exports become less competitive in overseas markets.	Imports become relatively cheaper than NZ made goods if our inflation rate is higher than our trading partners, so imports increase.
As exports decrease, export receipts decrease and exporters sales and profits fall.	As imports rise, import payments rise and less is spent on NZ made goods.
Exporters have to become more efficient, lay off staff or add value to their products.	As a result importers sales and profits increase and so they may employ more workers, increase investment level etc.

Activities:

1.

How different groups are affected by inflation	Positive ✓	Negative x
Savers		
Investors		
Borrowers		
Speculators		
Producers		
Fixed income earners		
Exporters		
Importers		
Beneficiaries		
Consumers		

2. Many people rely on interest on their savings for their income. They are hurt by low interest rates. Explain how this statement can be both true and false. _____

3. Explain how some households benefit from inflation. _____

4. Explain how some households loose from inflation. _____

5. Match the letters a to p to the appropriate words in the box at the end of the passage. Use the table to the right for your answers.

With inflation, those with a) income, such as beneficiaries, suffer. Their incomes can't keep pace with b) prices. Inflation is a c) to saving. Savings d) in value. Lenders are repaid with money worth e) than the money they originally lent. Steeply rising prices alter economic relationships and cause some dissatisfaction among the various classes of people and can cause f) unrest. In industry, efficiency is discouraged, productive effort tends to be separate from its rewards, for example, yearly wage rises are taken for granted as a g) instead of a return or h) for greater i). As a consequence, the wage system does not operate as it should, by j) labour to those sectors where productivity is k). We are a country that depends on overseas trade, so increases l costs due to l) inflation means a higher price must be charged on m), making them less n) overseas. Inflation o) imports, since their prices become relatively p) to domestically produced goods.

Words: disincentive, reward, less, allocating, higher, stimulates, fall, right, industrial, fixed, productivity, highest, cheaper, competitive, rising, exports.

Letter in text	Term from box

6. Explain how a wage/price spiral can cause rising inflation. _____

7. **Compare and contrast** the impact of rising inflation on importers and exporters.

8. Explain, with reasons, why firms prefer long term levels of low, stable inflation. _

9. Explain why anticipated inflation may have a negative impact on the economy. _

10. Compare the impact of inflation on workers who are able to demand high pay rises versus workers whose wages do not keep up with inflation rates. _____

11. Identify and explain two negative impact of inflation on each of the following.

Households

Impact 1: _____

Impact 2: _____

Firms

Impact 1: _____

Impact 2: _____

Exporters

Impact 1: _____

Impact 2: _____

12. Describe the concept of fiscal drag and how it impact on households. _____
