Inflation

I am sure that you have noticed, especially during the Celtic Tiger years, that prices have a tendency to rise as time goes by. The name for this increase in price is inflation.

Inflation: is a sustained increase in the general level of prices

It is important to realise that inflation can have a big effect on an economy. Inflation effects the real value of money. If inflation inflation occurs, that means you can buy less goods and services. Inflation makes each euro that you have in your pocket less valuable.

After a rise in prices (inflation), a given amount of money can purchase less goods and services. Inflation results in a fall in he purchasing power of money.

Again, it is important to understand what inflation is. If inflation is at 4%, that means that on average, prices have increased by 4% in the economy. If there is no inflation, that means that prices are not changing.

However, what does it mean when it is reported that inflation fell from 4% to 3%. Does this mean that prices are going down? Unfortunately not. Remember that inflation is a **sustained increase** in the general level of prices. If inflation is occuring at all, that means that prices are going up.

A fall in the rate of inflation (from 4% to 3%) means that prices are still going up but the rate at which they are increasing has fallen. Basically, prices are still going up but not by as much.

Looking at the Irish economy after the Celtic Tiger, we see that prices, especially house prices, have fallen. You can refer to this as negative inflation, however most economists refer to this as deflation.

Deflation: is a sustained decrease in the general level of prices

Now that we are aware of the different definitions regarding inflation we will take a look at its effects and what causes it.

Explain the likely Effects on the Irish Economy of a Significant Increase in the Annual Rate of Inflation

1) **Lower Standard of Living:** Because of the higher cost of living, people have reduced purchasing power which causes a reduction in their standard of living.
2) **Increased Wage Demands:** Workers, suffering from a reduction in their standard of living, will try to negotiate wage increases to compensate for the higher cost of living.
3) **Loss of Competitiveness:** If inflation is higher in Ireland than with our trading partners it will result in a loss of competitiveness for our exports abroad. Irish exports may be priced out of foreign markets.
4) **Loss of Employment:** Employers, faced with increased wage demands and a possible loss of exports may be forced to reduce costs and reduce the numbers employed.
5) **Government Finances:** With higher prices the government may collect increased indirect tax revenues.
6) **Savings Discouraged:** If the inflation rate is greater than the (nominal) rates of interest offered on savings, the real rate of interest available to savers falls thereby discouraging savings. Accumulated wealth is eroded by inflation.
7) **Borrowing Encouraged:** If the inflation rate increases, the real rate of interest charged on borrowings falls and so the cost of repayments falls. This makes borrowing more attractive.
8) **Increased Disparity between Sectors of the Population:** While those at work may seek a wage increase to compensate for the drop in living standards, those on fixed incomes must wait for the government to decide to adjust their payments. This widens the gap between these sectors. The poorer sections suffer most when inflation is high.
9) **Pressure on Social Partnership/ Industrial Relations Unrest:** Falling living standards threatens the existence of these agreements and may prevent future agreements.
10) **Balance of Payments Problems:** With falling volume of exports & rising volume of imports our Balance Of Payments position deteriorates. Exports become dearer and less competitive on foreign markets, while imports become more competitive on the home market.
11) **Uncertainty:** Rising inflation rates in Ireland creates uncertainty for investment decisions. It makes business planning and profit calculation difficult.

Causes / Types of Inflation

Prices rise and fall for a variety of different reasons, to which we will now turn our attention.

Demand Pull Inflation

Demand Pull Inflation: occurs when the economy cannot produce enough goods and services to meet the demand of its citizens.

"There is too much money chasing too few goods", or Aggregate Demand exceeds Aggregate Supply. As sellers (producers) cannot supply enough goods or services to meet the increase in demand, they increase price in order to raise their profits.

Sources of Demand Pull Inflation

1) **Increased Incomes:** When incomes rise this causes Aggregate Demand to Shift Outwards. Even with an increase in Aggregate Supply, this causes prices to increase (inflation).
2) **Decreased Direct Taxes:** When taxes on incomes and wealth fall, disposible income rises. Again, Aggregate Demand increases (shifts out) causing prices to rise.
3) **Increased Government Spending:** The government can increase Aggregate Demand by spending more money. Even with an increase in Aggregate Supply, prices will rise.
4) **Low Interest Rates:** When the European Central Bank (ECB) pursues policies that cause interest rates to fall, this lowers the cost of borrowing money. With more borrowing, Aggregate Demand increases, pulling prices upward.

In a small open economy like Ireland, excess demand tends to be met by Irish people buying a greater quantity of imports. However, in the case of non - traded goods (houses) or services (haircuts), where imports are not an option, excess demand will lead to higher prices.

Cost Push Inflation

Cost Push Inflation: is any increase in the general level of prices due to an increase in the costs of production

Or

Cost Push Inflation: is any increase in the general level of prices due to an increase in the cost of inputs faced by the producer

Cost Push Inflation is an increase in prices due to increasing production costs. Normal Profit is the minimum payment necessary to keep the entrepreneur in the business in the longrun. If the entrepreneur's cost rise, he tends to pass this increase on to the consumer in the form of higher prices.

Sources of Cost Push Inflation

1) **Increased Wage Demands:** This is due to minimum wage laws or Social Partnership Agreements. When wages rise so do production costs which the entrepreneur passes onto the consumer.
2) **Indirect Business Taxes:** If Value Added Tax (VAT) or excise duties on goods bought by businesses increase, then this cost will be passed on to the consumer in the form of higher prices (inflation).
3) **Increased Raw Material Prices:** If the price of a raw material which is used in the production process of the business rises, then the cost will be passed onto the consumer in the form of higher prices.
4) **Increased Costs of Production:** If general costs of doing business, like utility charges, cost of rent, insurance etc increases, this will result in higher prices for the consumer (inflation).

Government Induced Inflation

Even though it is the job of the government to control macroeconomic variables like inflation, by pursuing certain policies, the government can actively cause inflation to increase.

When the government raises indirect taxes like VAT on goods like alcohol, cigarettes or petrol and excise duties on imported goods, the price of these goods rises. This is inflation.

These goods are included in the Irish measure of inflation which is called the Consumer Price Index (CPI) and when price rises in this manner so too does inflation.

Also, if the government increases the amount of money it spends in the Irish Economy (increased government expenditure), this increase in Aggregate Demand could also cause the general price level to rise.

Imported Inflation

If the price of goods, that are enjoyed by Irish consumers but are not produced in Ireland (imports of raw materials or finished goods), increases then this causes inflation, as measured by the CPI, to increase.

Low Interest Rates

When interest rates are low, people borrow more as the cost of servicing this debt has been reduced. This increases investment, but investment increases Aggregate Demand. This increase in spending/investment may cause demand pull inflation.

High Interest Rates

In the Longrun, high interest rates increase the cost of borrowing and as such reduces investment reduces. When investment falls, this reduces Aggregate Demand. When Aggregate Demand Falls, prices fall. However, in the short run, an increase in interest rates means that those on variable rate mortgages have to suffer higher repayments. Mortgage repayments are included in the CPI and increased mortgage repayments will cause inflation figures to increase in the short run.

Role of the Government in Reducing Inflation

It is generally accepted that one of the main aims of the government is price stability. This means to control inflation. There are many reasons why the government would wish to control inflation, but one main one would be to avoid a loss of competitiveness abroad.

A Loss of International Competitiveness: can be defined as a situation where Irish goods and services become less attractive to foreign buyers

The ability of the Irish government to control inflation is actually quite limited. For example, the government cannot effect the world price of oil. If the world price for oil rises, so does the price for oil that Irish firms have to pay. Also, the Irish government cannot raise interest rates. Only the ECB has the ability to do this.

However, the Irish government does have certain options available to it to control inflation.

1) **Decrease Indirect Taxes:** If the government reduces indirect taxes like VAT on goods and services, this would cause prices to fall.

Indirect Taxes: are taxes on goods and services

2) **Increase Direct Taxes:** If the government raised direct taxes then workers would have less take home pay. Remember, taxation is a leakage out of the circular flow of income. This causes a reduction in Aggregate Demand which reduces the price level.

Direct Taxes: are taxes on income and wealth

3) **Reduce Government Expenditure:** Government expenditure is an injection into the circular flow of income. If you reduce an injection, this causes Aggregate Demand to fall, which in turn causes the price level to fall.

4) **Negotiate with the Social Partners:** The government negoiates with the social partners (Employers IBEC, Trade Unions ICTU and many other interest groups) to control pay increases and help to control business costs. This should help to control cost push inflation.

How Changes in Prices are Measured

The change in price of a single good can be measured by using a Simple Price Index.

A Simple Price Index: measures the percentage change in the price of one good over time.

In order to construct a Simple Price Index you use the following steps.

1) **Choose a Base Year:** A year is chosen which we compare the price of the good in that year to the price of the good now. If prices have risen since the base year, we say that there has been inflation. If prices have fallen since the base year, we say that there has been deflation. If prices have stayed the same, there has been neither inflation nor deflation.
2) **Find the Prices:** You need to find the price of the good in the base year and the price of the good in each subsequent year that you wish to measure the rate of inflation.
3) **Write as a Percentage:** Express the price of the good in each year as a percentage of the price of the good in the base year.

E.g. Suppose the Irish government asked you to asses the change in price of hamburgers over the period from 2007 - 2011. Note, this is the change in the price of just one good so you use a Simple Price Index.

1) **Choose a Base Year:** As 2007 is the first year of the price study, you take 2007 as the base year.
2) **Find the Prices:** In practice, these will be given to you in the question. In reality you would ask restaurants and takeaways for documentation showing their prices over that period of time.

Year	2007	2008	2009	2010	2011
Price	€2	€1	€1.50	€2.50	€3

3) **Express as a Percentage:** Write the price of the good in each year as a percentage of the price of the good in the base year. To do this we use the following formula.

$$\text{Index Number for Each Year} = \frac{\text{New Price X 100}}{\text{Base Year Price}}$$

Index Numbers

$$2007 = \frac{2 \text{ X } 100}{2} = \frac{200}{2} = 100$$

This is always the answer you get when you compare the price in the base year to itself

$$2008 = \frac{1 \text{ X } 100}{2} = \frac{100}{2} = 50$$

This answer means that the price in 2008 is 50% (half) of the price that it was in 2007. Therefore, we can say that there has been deflation in the price of hamburgers from 2007 to 2008.

$$2009 = \frac{1.50 \text{ X } 100}{2} = \frac{150}{2} = 75$$

This means that the price of hamburgers in 2009 is 75% (3/4) the price of hamburgers in 2007. From this we can say 2 things. Firstly, there has been deflation from from the base year (2007) to now (2009). Secondly, there has been inflation from 2008 to 2009 as price has risen from 2008 to 2009.

$$2010 = \frac{2.50 \text{ X } 100}{2} = \frac{250}{2} = 125$$

This means that the price of hamburgers in 2010 is 125% (25% increase in price) the price of hamburgers in 2007. We can say that there has been inflation from 2009 to 2010 and also, there has been inflation from the base year (2007) to now (2010).

$$2011 = \frac{3 \text{ X } 100}{2} = \frac{300}{2} = 150$$

This means that the price of hamburgers in 2011is 150% the price of hamburgers in 2007 (50% increase in price). We can say that there was inflation from the base year (2007) to now (2011). Also, there was inflation from 2010 to 2011.

We can write the Simple Price Index in tabular form. See below.

Year	2007	2008	2009	2010	2011
Index Number	100	50	75	125	150

Points To Note

1) The Base Year always yields an index number of 100.
2) It easily tells use the percentage change in price between any year and the base year.

However, inflation is a measure of the change in prices of a basket of goods over a period of time. The Central Statistics Office (CSO) is the government body that measures inflation in Ireland. The CSO produce what is called a Composite Price Index every month.

A Composite Price Index: is a price index which does not give equal importance to each good. Each good is given a weight which reflect the percentage of income that is spent on each good.

The Composite Price Index that the CSO compiles every month to measure inflation is called the Consumer Price Index (CPI).

The Consumer Price Index (CPI): measures the change in the average level of prices paid for consumer goods and services that people typically buy over time.

What is the CPI

The Consumer Price Index or CPI measures the overall change in the prices of things that people typically buy over time. It does this by collecting over 50,000 prices every month and comparing these to the prices from the previous month.

As everyone has differing tastes and spending habits, the CPI measures prices for a huge assortment of items. Not only does the CPI measure price changes for goods but also for services e.g. hairdressing, taxi fares, insurance etc. This collection is normally referred to as the basket of goods and services.

The basket does not apply to any particular person or family but represents the majority of households in Ireland. The goods and services that are included in the basket are determined from the 5 yearly Household Budget Survey. The relative importance or weights (the greater the importance, the greater the weight) of these goods and services are also decided from information collected in the Household Budget Survey.

Since 2001 foreign tourists on holiday in Ireland are also included in the index by increasing the weights of those items typically purchased by tourists such as accommodation and meals out.

Who uses the CPI?

The CPI results are used by:

1) Irish government departments
2) The European Union
3) All macro-economists
4) All researchers with an interest in economic trends
5) Other special interest groups.

What Economics Uses are Made of the Consumer Price Index (CPI)

1) **Measures the Rate of Inflation:** Changes in the CPI from one month to the next gives us the official prevailing rate of inflation.
2) **Measures International Competitiveness:** By comparing our inflation rate with that of our trading partners we can determine whether our competitiveness on international markets is improving or disimproving.
3) **Used in Partnership Agreements Negotiations:** Trade unions use any increase in the CPI as the basis for their wage claim increases.
4) **Indicator of Economic Performance:** The CPI, together with statistics on employment, economic growth, exchequer returns etc., provide an indicator of the country's economic performance.
5) **Indexation of Savings or Investments:** Some savings schemes have 'index-linked' returns meaning that the rate of interest will be equal to the rate of inflation. Individuals with insurance / pension policies may be able to increase their contributions so at to maintain the real value of these policies.
6) **Used by Government when Indexing Tax Bands or indexing Social Welfare Payments:** The government may use increases in the CPI to index tax bands so that taxpayers are not paying more tax. Similarly, the government may use increases in the CPI to increase rates of social welfare so as to maintain the standard of living of the recipients.

How to Construct the Consumer Price Index (CPI)

This is a question that comes up from time to time. If it does just write exactly what is below. However, you will understand it much better with the maths examples that follow.

1) **Determine what Commodities are to be in the Index:** This decision is based on the 'National Average Family Shopping Basket'. Those items which the average Irish family buys frequently and in large quantities are included.
2) **Expenditure Patterns are Divided into Various Categories:** The CPI contains various categories of expenditure: food, alcohol, tobacco, clothing & footwear, fuel & light, housing, durable and non-durable household goods, transport, services and miscellaneous items etc.
3) **Calculation of 'Weight' (Household Budget Survey):** The weight is the fraction of income which is spent on each category of expenditure and this information is obtained by means of the Household Budget survey (random sample of all private households in the state).
4) **Prices in the Base Year are Determined:** The average cost of the above items is taken to equal 100.
5) **Prices in the Current Year are Determined:** The current prices of each item are collected from a fixed panel of retail and service outlets in various locations throughout the country.

Maths Questions

When answering a maths question on the CPI just remember the following steps.

- **Prices:** There will be only 2 years given. The prices in the base year and the prices in the current year will already be given in the question.
- **Categories:** These will already be given in the question. Every year that it has come up there has only been three categories.
- **Weights:** Again, these will be given in the question as percentages. When using these figures in your calculations, turn them into decimals.
  E.g. 30% = 0.3
  E.g. 50% = 0.5
  E.g. 45% = 0.45

To Calculate a CPI Mathematically

1) Calculate a Simple Price Index for each category.
2) Multiply the answer in step 1 by the associated weight in decimal form.
3) Add together all the answers you get from step 2

2008

For a Composite (Weighted) Price Index covering three categories of expenditure given in the following table, calculate the index for the following year. The base year is 100. Show all your workings.

Category	% of Income spent on items	Price of items in base year	Price of items in current year
		€	€
Food	40%	20	24.5
Clothing & Footwear	25%	42	40
Other Items	35%	30	36
	100%		

Answer

Category	Prices of items in Base Year	Calculation of Simple Price Index X Weight
	€	
Food	20	$\frac{24.50 \text{ X } 100}{20}$ = 122.50 X 0.4 = 49.00
Clothing & Footwear	42	$\frac{40.00 \text{ X } 100}{42}$ = 95.23 X 0.25 = 23.80
Other Items	30	$\frac{36.00 \text{ X } 100}{30}$ = 120 X 0.35 = 42.00
Price Index for the Current Year		**114.80**

This answer means that prices have increased by 14.8% since the base year.

Does the CPI Accurately Measure changes in the Cost of Living

No, the CPI does not accurately measure changes in the cost of living in Ireland for the following reasons.

1) **Limitations of an Average:** As it represents the average spending patterns of the total population, it may not accurately represent particular groups in the population. E.g. Non - Smokers
2) **Static Weights:** The weights used are those which apply in the base year. The importance of some items in the base year changes over time because of changes in relative prices, taste and income. The information collected under the Household Budget Survey may not be accurate. E.g. Respondents understanding the amount of income spent on alcohol.
3) **New Products:** As it includes only those products in the base year it lags behind consumer trends and fashions. New products are not included in the index.

4) **Quality of Products:** The index does not take account of changes in the quality of products. Higher prices may reflect an improvement in the quality of the product.
5) **Rural V's Urban Lifestyles:** Both urban and rural households represented by the present set of weights but this may not reflect accurately changes in their present cost of living. It disregards consumption of own produce.
6) **Switching by Consumers:** When prices rise, the CPI does not measure the extent to which people may switch to cheaper brands.
7) **Measures Changes to Prices:** The CPI measures changes to prices not changes in the cost of living because it doesn't take into account all the items which affect living standards. Items like Income Tax, Social Welfare etc.