

## Demand

Demand and Supply are the two words most used in economics and for good reason. Supply and Demand are the forces that make market economies work. They determine the quantity of each good produced and the price that it is sold. If you want to know how an event or policy will affect the economy, you must think first about how it will affect supply and demand.

This note introduces the theory of demand. Later we will see that when demand is joined with Supply they form what is known as Market Equilibrium. Market Equilibrium decides the quantity and price of each good sold and in turn we see how prices allocate the economy's scarce resources.

The quantity demanded of any good is the amount of that good that buyers are **willing and able** to purchase.

The word able is very important. In economics we say that you only demand something at a certain price if you buy the good at that price. If you are willing to pay the price being asked but cannot afford to pay that price, then you don't demand it. Therefore, when we are trying to measure the level of demand at each price, all we do is add up the total amount that is bought at each price.

**Effective Demand:** refers to the desire for goods and services supported by the necessary purchasing power.

So when we are speaking of demand in economics we are referring to effective demand.

Before we look further into demand we make ourselves aware of certain economic laws that help explain consumer's behaviour when buying goods. (Remember we covered economic laws in the previous handout)

**Law of Demand:** states that as the price of a product rises the quantity demanded will fall and as the price of a product falls so the quantity demanded will rise.

All normal goods obey this law.

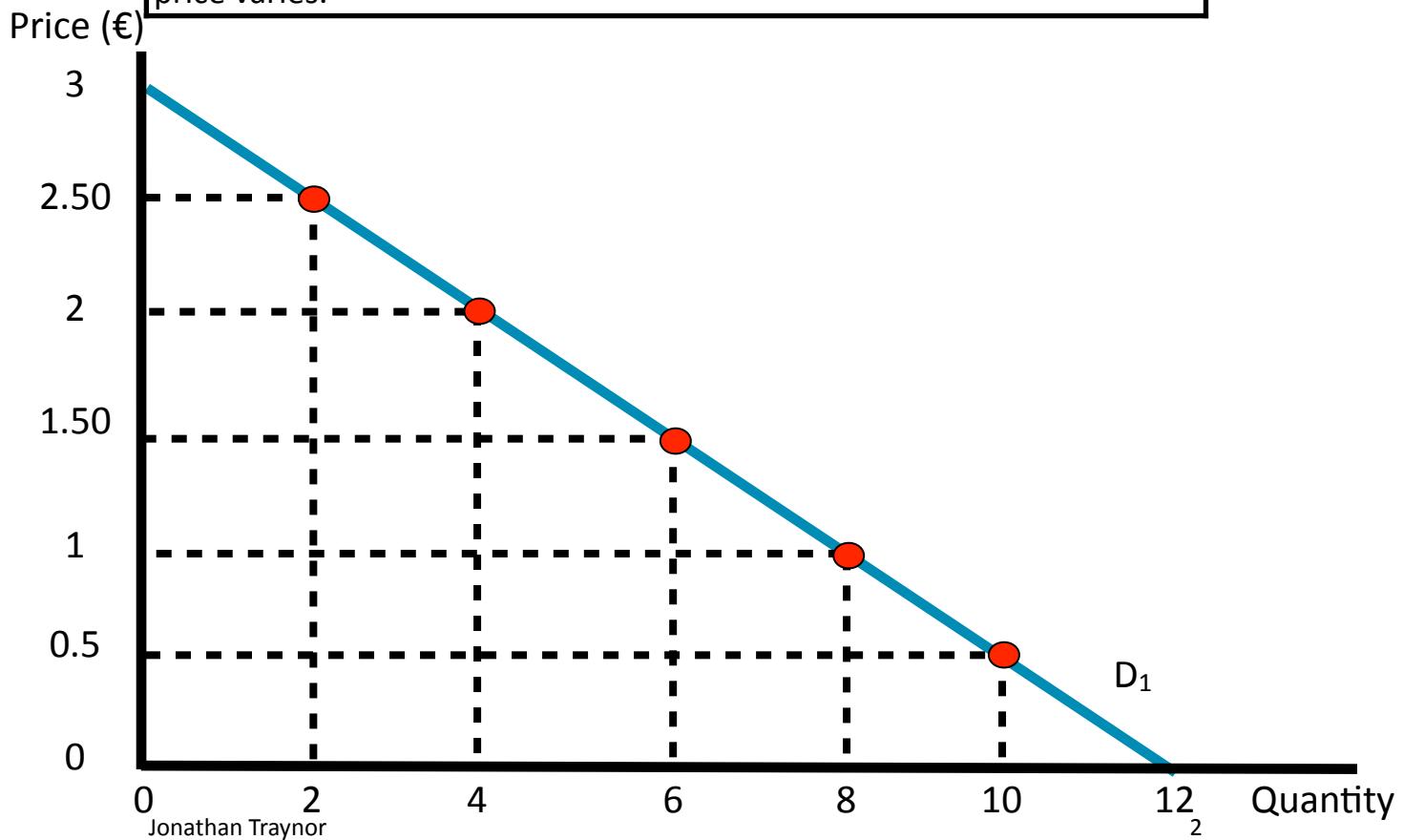
### Demand Schedule

**The Demand Schedule:** shows the quantity demanded at each price.

Demand Schedule for Ice - Cream Cones	
Price	Quantity
€0	12
€0.5	10
€1	8
€1.5	6
€2	4
€2.5	2
€3	0

### The Demand Curve

**The Demand Curve:** The demand curve (which graphs the demand schedule) shows how the quantity demanded of a good varies as its price varies.



The reason a person's demand curve for a normal good slopes downward is because as the price of a good falls the consumer buys more of this cheaper good, because the marginal utility per cent spent on this good increases and the consumer aims to maximise his/her total utility.

The demand curve overleaf shows an individual's demand for ice cream cones.

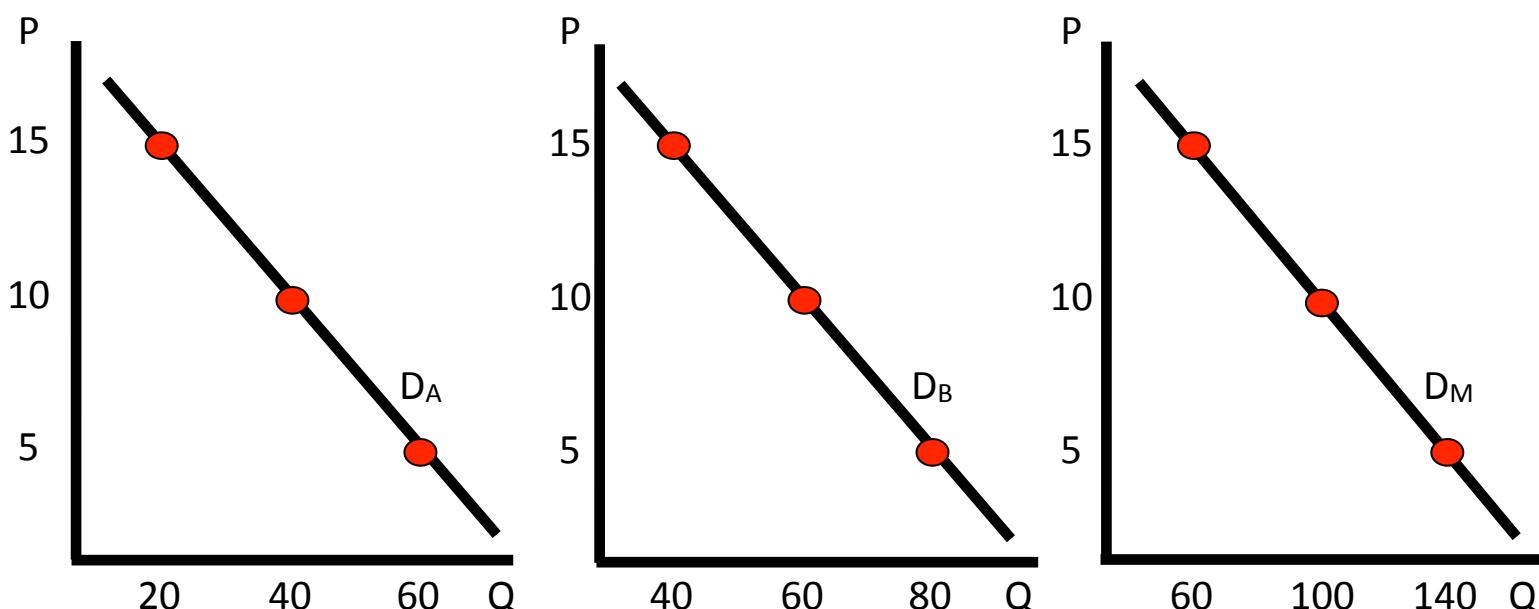
**Individual Demand:** is the quantity of a good an individual consumer demands at different prices.

However, if we added together each persons individual demand for any product, we would get what is called Market Demand

**Market Demand:** is the total quantity of a good that all consumers demand at different prices.

Demand Schedule for Ice - Cream Cones			
Price	Consumer A	Consumer B	Market
€5	60	80	140
€10	40	60	100
€15	20	40	60

Consumer A's Demand Curve + Consumer B's Demand Curve = Market Demand Curve



**To derive the market demand add the quantity demanded by each individual consumer at each price to calculate the overall quantity demanded by the market at each price.**

The Demand curve is a graphical representation of the LAW OF DEMAND. It shows that as price rises, demand falls and vice versa. All normal goods obey this law. But some goods break the law of demand and they have differently shaped demand curves, which we will look at now.

### **Goods that Break the Law of Demand**

- 1) **Goods of Ostentation (Snob Goods):** Some commodities by their exclusiveness or expensiveness are attractive to some buyers. A rise in price makes them more exclusive, and therefore, more attractive to those with the incomes to purchase them. A fall in price may lead to a fall in quantity demanded as they may no longer appear as exclusive to the rich and are still outside the price range of the poor. The consumption of goods of ostentation is known as conspicuous consumption.
- 2) **Goods of Expectation:** If prospective buyers think that prices are likely to be even higher in the future, the current level of demand may not fall even if prices increase e.g. if a person is considering buying a house the possibility that prices are likely to be even higher in the future will probably stimulate demand at current prices.
- 3) **Goods of Addiction:** In the case of those goods to which a person becomes addicted e.g. drugs, they no longer act rationally. They become so addicted to the drug that in order to get the same 'buzz' from consumption of the drug, demand for the commodity may increase, even when the price of the commodity increases.
- 4) **Giffen Goods:** For certain necessities a rise in price causes an increase in demand while a fall in price causes a fall in demand. Goods of lower quality make up a large part of the spending of low income families. As the price falls, real incomes increase and families buy less of these goods and purchase more, better quality goods. As the price rises they have less income to spend on other types of goods so they tend to increase their demand for these goods.

**Giffen Goods:** A Giffen good is a necessity that has few substitutes which represents a large portion of the expenditure of low income families. Giffen goods react abnormally to changes in real income caused by a price change and as such break the Law of Demand.

When the price of a necessity that has few substitutes rises, at a time when incomes are extremely low, the demand for such necessities may also rise. This happens as consumers cut out spending on more expensive luxuries and consume more of the necessity.

An Irish example of a Giffen good is the increase in the demand for potatoes as their price rose due to scarcity during the Famine. People in Ireland spent much of their incomes on potatoes (a necessity with no substitute). As potatoes became scarce and their price rose, people cut out spending on other goods such as meat (a luxury) and allocated more money to potatoes. As price increased so did demand.

**Money Income:** Refers to income in terms of currency. E.g. €500 per week

**Real Income:** The real income of a consumer refers to the purchasing power of money income.

I.e. it refers to how much stuff a euro will buy. More on that later.

Spending of Low Income Families			
Consumer Income = €2			
The Family buys 2 goods only			
Meat = €1.20 Potatoes = €0.80			
Goods	Price	Quantity	Expenditure
Meat	1.2	1	€1.20
Potatoes	€0.80	1	€0.80
			€2

See the table on the following page for the demand decision of the consumer following an increase in the price of potatoes.

Spending of Low Income Families			
Consumer Income = €2			
The Family buys 2 goods only			
Meat = €1.20 Potatoes = €1			
Goods	Price	Quantity	Expenditure
Meat	1.2	0	€0
Potatoes	€1	2	€2
			€2

In the above example we see that even though the price of potatoes rose, the family had no choice but to buy more potatoes. That means that for this family, potatoes are a Giffen Good. As prices rose (their real income fell as the purchasing power of money fell), the family's demand for potatoes increased.

The reason for this unusual behaviour is that potatoes are

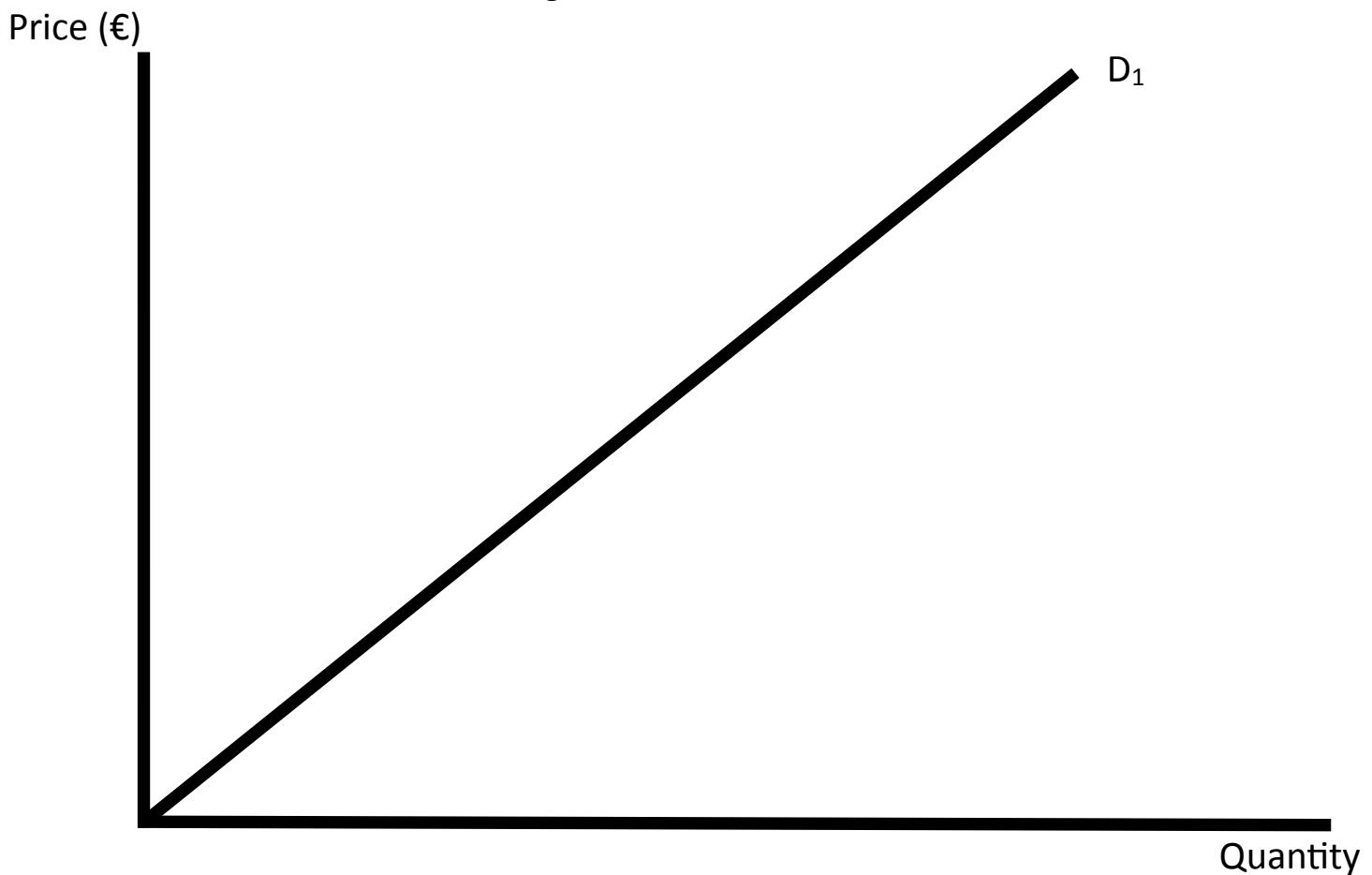
- 1) A Necessity
- 2) With Few Substitutes
- 3) That represents a large portion of the expenditure of this low income family.

When you think about it, the family really did not have a choice but to buy more potatoes. You can think of Giffen Goods as necessities that poor families have to buy. They have no choice but to buy these necessities.

See the next page to view the Demand Curve for goods that break the Law of Demand.

Remember, the goods that break the Law of Demand are

- 1) Goods of Ostentation
- 2) Goods of Expectation
- 3) Goods of Addiction
- 4) Giffen Goods

**Regressive Demand Curves**

So far we have seen demand curves when they are not moving, but there are many factors which cause demand to change. We will now have a look at the factors which cause a change in demand.

### Change in Demand

The following cause a change in demand

- 1) Change in the price of the good itself
- 2) Price of Related Goods
- 3) Government Regulations
- 4) Income of the consumer
- 5) Consumer Tastes or Preferences
- 6) Advertising
- 7) Expectations regarding future price
- 8) Unplanned Factors

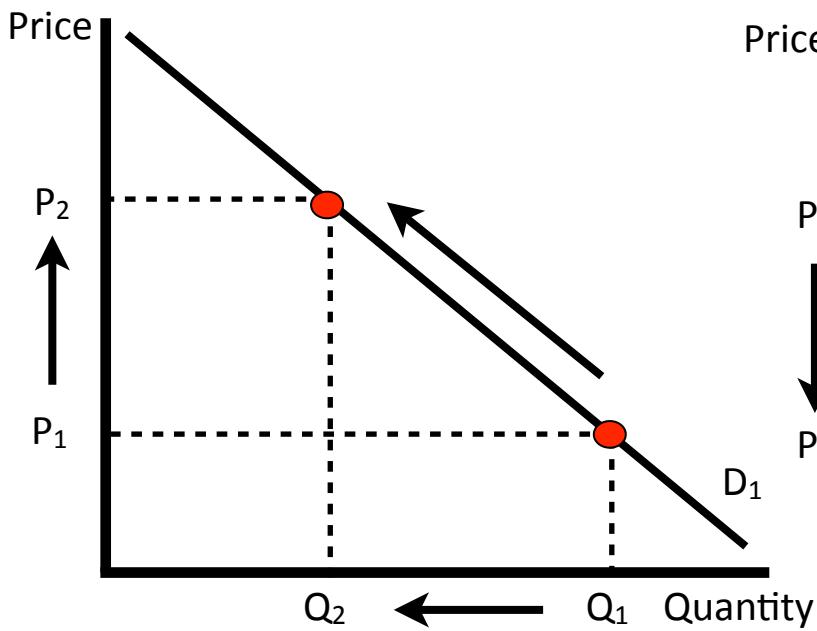
The factors can be represented by a demand function

$$D = f(P_1, P_2, G, Y, T, A, E, U)$$

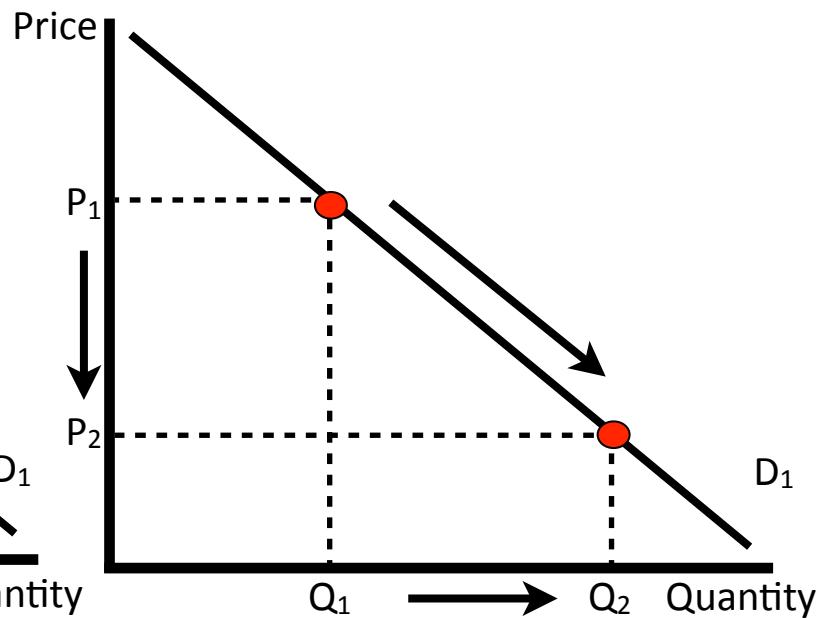
- 1) **PRICE OF THE GOOD ITSELF:** Generally as the price of a good falls, consumers will buy more of that good. This is because consumers are getting better value for their money. This causes a downward movement along the existing demand curve. As the price of a good rises consumers will buy less of that good. This is because consumers are getting worse value for their money. This increase in price causes a movement upwards along the existing demand curve.

**NOTE:** The change in the price of the good itself is the only factor that causes a movement along the existing demand curve. All other factors cause a shift in the demand curve.

#### Movement Up the Demand Curve



#### Movement Down the Demand Curve



**A Movement Along the Demand Curve:** is caused by a change in the selling price of the good itself, all other things being equal.

- 2) **PRICE OF RELATED GOODS (Substitutes and Complements):** If the price of a complementary good rises then the demand for the good in question (this good) falls and vice versa. E.g. if the price of tennis racquets rises then the demand for tennis balls will fall, as people take up other sports. This will cause an inward shift in the demand curve for tennis balls. If the price of substitute good rises the demand for the good in question rises. E.g. If Daz washing powder rises in price there will be an outward shift in the demand for Persil.

**A SUBSTITUTE GOOD:** is a good that can fulfill the same function as the good in question.

E.g. Coke and Pepsi/ Daz and Persil etc.

**COMPLEMENTARY GOODS:** are goods that are in joint demand.

- 3) **GOVERNMENT REGULATIONS:** If the government initiates a program to curtail consumption of a particular product then it may affect the demand for this good. I.e. causing an inward shift in the demand curve. E.g. a health campaign to curtail cigarette consumption.
- 4) **INCOME OF THE CONSUMER:** For normal goods, as disposable income rises, the demand for them increases causing an outward shift in the demand curve. If income falls, then demand for these goods will fall, resulting in an inward shift in the demand curve.
- 5) **CONSUMER TASTES OR PREFERENCES:** when a commodity comes into fashion or into season, there is an increase in the quantity demanded at each price. I.e. an outward shift in the demand curve. E.g. the demand for shorts and t-shirts rises coming up to summer. A health scare will cause demand to fall resulting in an inward shift in the demand curve. E.g. salmonella in eggs.
- 6) **ADVERTISING:** A successful advertising campaign causes demand to shift outwards. A reduction in advertising causes the demand curve for a good to shift inwards.
- 7) **EXPECTATIONS REGARDING FUTURE PRICE:** If a consumer expects that future prices are likely to be greater in the future, this might cause an increase in demand now resulting in an outward shift in the

demand curve. If future prices are expected to fall then this will cause a decrease in demand now resulting in an inward shift.

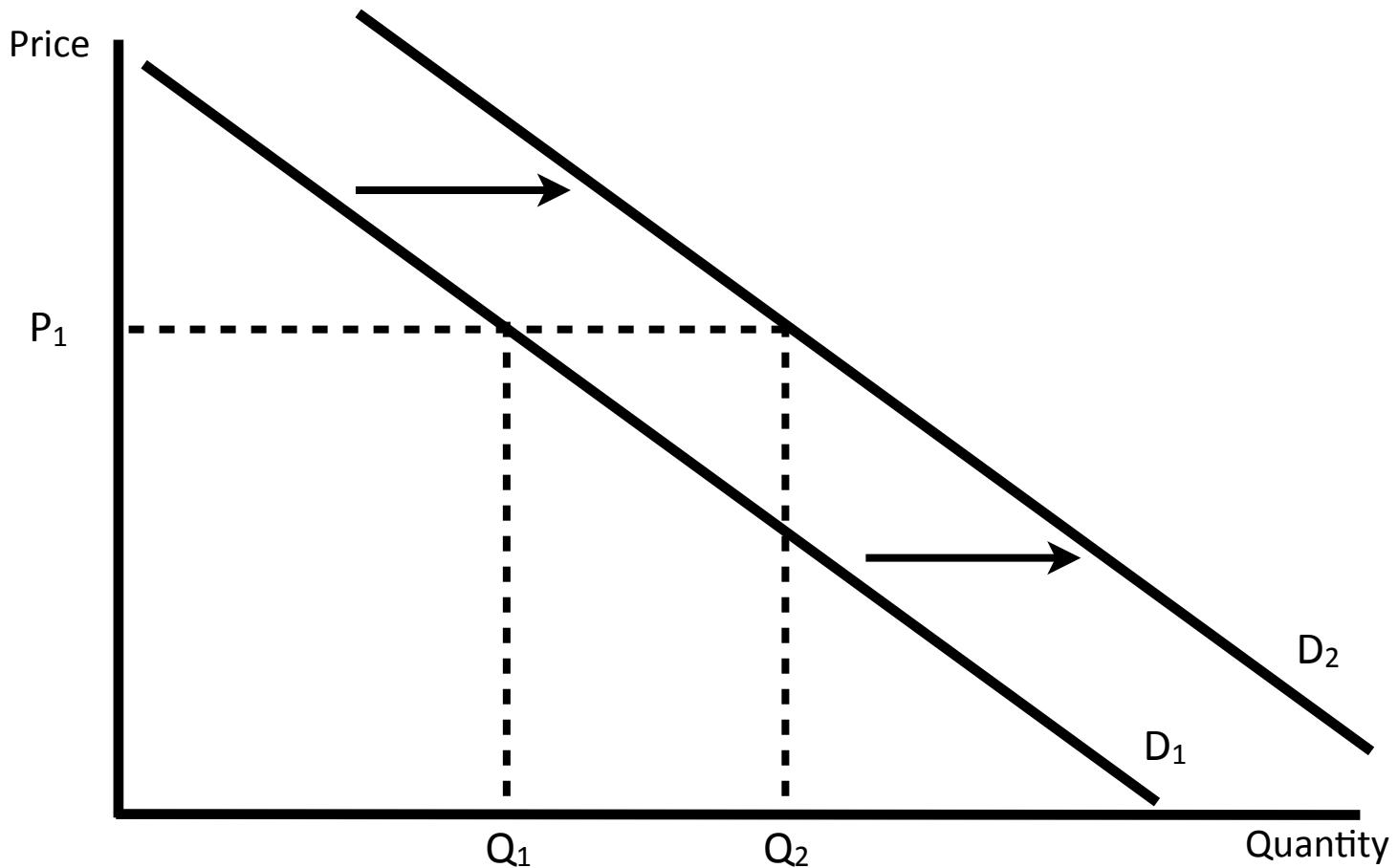
- 8) **UNPLANNED FACTORS:** If there was a sudden heat wave this might increase the demand for ice-cream, thus causing an outward shift in the demand curve for ice-cream.

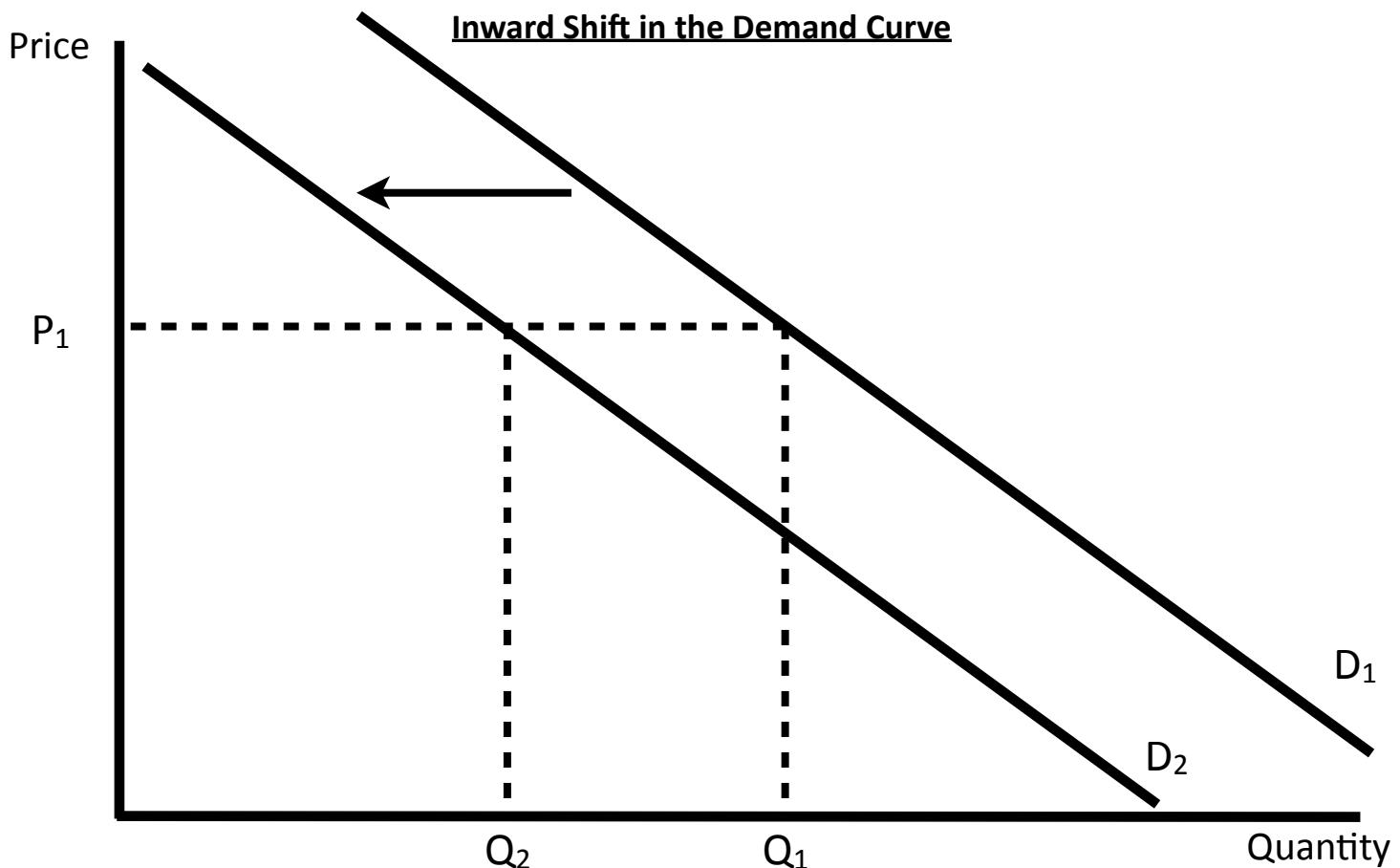
From point 2 to point 8 above, we have looked at the factors that cause “a shift in the demand curve”. Remember, a change in price causes a movement and a change in any other factor causes a shift.

**Shift in the Demand Curve:** If any of the factors other than the price of the good itself change this will result in a shift in the demand curve.

There are 2 different types of shift that can happen to a Demand Curve. An Outward Shift or an Inward Shift. We will take a look at a graphical representation of them now.

#### Outward shift in the Demand Curve





When a shift in the demand curve occurs, the quantity demanded for the good at each price changes. When there is an inward shift in the demand curve, then the quantity demanded for that good at each price is less after the shift than it was before the shift. When there is an outward shift in the demand curve, then the quantity demanded for that good at each price is greater after the shift than it was before the shift.

### **Normal Goods, Inferior Goods and Giffen Goods**

**Normal Goods:** are goods with a positive income effect. Demand for these goods rises as income rises and falls as income falls

Remember Normal goods also respond “normally” to changes in real income.

I.e. as income rises quantity demanded rises and as income falls quantity demanded falls. This is known as a positive income effect. Normal goods have a positive income effect.

**Inferior Goods:** are goods with a negative income effect.

That is they respond abnormally to changes in real income.

I.e. as income rises quantity demanded falls and as income falls quantity demanded rises.

**Giffen Goods:** A Giffen good is a necessity that has few substitutes which represents a large portion of the expenditure of low income families. Giffen goods react abnormally to changes in real income caused by a price change and as such break the Law of Demand.

Giffen goods are inferior goods because all Giffen goods have a negative income effect (which is the definition of an inferior good). The difference between Giffen goods and ordinary inferior goods is that Giffen goods break the law of demand.

**Real Income:** The real income of a consumer refers to the purchasing power of money income.

If prices rise then real income falls and if prices fall then real income rises (assuming that money income remains constant)

Now that we have all the above definitions, we will explain why normal and inferior goods obey the law of demand and why Giffen goods break the law of demand.

Following a Price change there are two separate effects on the consumer.

- 1) The Substitution Effect
- 2) The Income Effect

When you add these two effects together you get the overall Price Effect.

The Price Effect is the total effect on demand following a price change. It is the addition of the Income Effect and the Substitution Effect.

$$\text{SUBSTITUTION EFFECT} + \text{INCOME EFFECT} = \text{PRICE EFFECT}$$

**THE SUBSTITUTION EFFECT:** means that as the price of a good falls, consumers tend to buy more of it as the ratio of Marginal Utility (MU) to price increases. The consumer will switch away from other goods which are now relatively dearer.

The Substitution effect is always positive for all goods- Normal, Inferior and Giffen

The consumer will always tend to buy more of a relatively cheaper good. It is the Substitution Effect that causes the consumer to always buy more of a relatively good.

However, following a price fall, the good is now relatively cheaper, the consumer experiences a rise in real income. This is the income effect.

**THE INCOME EFFECT:** refers to the change in consumer's real income following a price change. I.e. if prices rise real incomes fall and if prices fall real incomes rise.

The income effect can be either positive or negative. Normal goods have a positive income effect but Inferior goods and Giffen Goods have a negative income effect. Look at the example on the following page.

Type of Good	Substitution Effect	+	Income Effect	=	Price Effect
(1) Normal Goods	+	+	+	=	$P \downarrow Q \uparrow$
(2) Inferior Goods	+	>	—	=	$P \downarrow Q \uparrow$
(3) Giffen Goods	+	<	—	=	$P \downarrow Q \downarrow$

Goods (1) and (2) obey the law of demand. In the case of good (2) which is inferior the positive substitution effect outweighs the negative income effect and so the good has a positive price effect (obeys the law of demand, which is the definition of a positive price effect).

However, in the case of good (3) which is both inferior and Giffen, the negative income effect is stronger than the positive substitution effect causing good (3) to break the law of demand.

**NOTE:** A negative income effect will occur (following a price change) when a consumer's increase in real income is more important than the fact that the good has become cheaper. That means that as the consumer's income rises, their demand for this good falls.

### Now Let's Explain what we are Talking About

Now that we have some idea about the definitions, we will take a slower and more involved look at each of the steps involved in understanding the concept of consumer choice.

What we are trying to do is to find out what change in consumers behaviour will occur when the price of a good changes. Will consumers buy more oranges and less apples when the price of oranges falls? Will consumers buy more cars and less bus journeys when the price of bus journeys fall? Some of the answers might be surprising but if you follow the steps that are outlined below you will be able to see how economists try to explain how consumers spend their money and change their spending habits after prices change.

Two things must be mentioned before we start. Firstly, this topic is very difficult. In my opinion it should not be on the Leaving Cert course and is more difficult to understand without a prior knowledge of what are called indifference curves. To emphasize how difficult this stuff is, it is usually left until second year in college, it is seen as being too difficult for first years!!!!!. Secondly, it rarely comes up and when it does it is of a relatively simple nature.

With both of those points being made, you should realise that it is quite straight forward to understand once you follow the steps that I will outline below, and in the unfortunate event that you cannot understand these steps, you really only need to know the net effect of a price change on three types of goods (Normal Goods, Inferior Goods and Giffen Goods). These can be learned off and yield the same number of marks if understanding the following steps alludes you.

### **Steps to follow when Assessing Consumer Choice**

To answer questions on the overall price effect, ask yourself the following questions

- 1) Has the good become relatively cheaper or relatively more expensive?
- 2) What does the substitution effect say how this would effect demand?
- 3) Have you become richer or poorer in real terms?
- 4) Does the good have a negative or positive income effect?
- 5) What does the income effect say about how this would effect demand?
- 6) Do these effects work in the same direction or opposite.
- 7) If they work in opposite directions, ask which effect is bigger

Don't be worried that you don't understand what any of these things mean, just be aware that when you are finished reading the next few pages, if you cannot understand the steps outlined above, then you need to go over the following pages again.

### **Lets Make a Start**

In economics we have two different measures of income.

- 1) Nominal Income
- 2) Real Income

**Nominal Income:** Refers to income in terms of currency.

E.g. €500 per week. It is the amount of money received per unit of time. Day, week, month, year etc.

**REAL INCOME:** The real income of a consumer refers to the purchasing power of money income.

Real Income depends on two things. The amount of money a person receives (their nominal income) and the prices that he has to pay in order to buy goods and services. Nominal Income only depends on the amount of money a person receives.

### An Example of Nominal and Real Income

#### **EXAMPLE 1:**

In a very simple economy, we will assume that workers earn €'s and there is only one good produced. Big Macs.

A worker earns €500 per week and the Price of Big Macs is €5 each.

Calculate

- 1) His Nominal Income
- 2) His Real Income

#### Answer

- 1) His Nominal Income is €500
- 2) His real income is calculated by dividing his money income by price  

$$\text{€500} \div \text{€5} = 100 \text{ Big Macs}$$

**Nominal Income**

The word 'Nominal' means 'name'. First, nominal income is just the amount of money received by a person (consumer) measured in euros. Secondly, Real income is calculated by dividing Nominal Income by Price and is measured in terms of **units** of goods and services affordable.

#### **EXAMPLE 2:**

In a very simple economy, we will assume that workers earn €'s and there is only one good produced. Milkshakes.

A worker earns €1,000 per week and the Price of Milkshakes is €2 each.

Calculate

- 1) His Nominal Income

## 2) His Real Income

### Answer

- 1) His Nominal Income is €1,000
- 2) His real income is calculated by dividing his money income by price  
 $\text{€1,000} \div \text{€2} = 500 \text{ Milkshakes}$

Again, Nominal Income is measured in euros and Real Income is measured in units of goods and services. In this case Milkshakes.

**Money Income** is only affected by the amount of income you receive.

If you get a raise, your money income has risen.

If you get a wage reduction, your money income has fallen.

**Real Income** depends on two things.

- 1) Money Income
- 2) Prices

If your money income rises (holding prices constant), your real income has also increased. If your money income falls (holding prices constant), your real income has also fallen. If your money income stays the same, but prices increase, your real income has fallen. If your money income stays the same, but prices fall, your real income has risen.

Real Income Rises

**More Examples**      Real Income Rises

In each of the following cases we look at what happens to a consumer's real income

- |  |                   |
|--|-------------------|
| 1) Income rises and prices stay the same | Real Income Rises |
| 2) Income falls and prices stay the same | Real Income Falls |
| 3) Income stays the same and prices rise | Can't Say         |
| 4) Income stays the same and prices fall | Real Income Rises |
| 5) Income rises and prices fall          | Real Income Rises |
| 6) Income falls and prices rise          | Real Income Falls |
| 7) Income rises and prices rise          | Can't Say         |
| 8) Income falls and prices fall          | Real Income Rises |

The reason that we can't say what happens to Real Income for the last two is that we don't know how much incomes have changed and how much prices have changed. If we knew both of these things then we could say what the effect on Real Income was.

### **Price Effects**

Following a Price change there are two separate effects on the consumer.

1. The Substitution Effect
2. The Income Effect

When you add these two effects together you get the overall Price Effect.

The Price Effect is the total effect on demand following a price change. It is the addition of the Income Effect and the Substitution Effect.

$$\text{SUBSTITUTION EFFECT} + \text{INCOME EFFECT} = \text{PRICE EFFECT}$$

To try to put this in English, all we are saying is that when the price of a good changes a consumer has to make a decision on how to best spend his money in order to maximise his utility with the new prices. The law of demand says that as the price rises, consumers buy less of a good. This is true but in order to maximise their utility, consumers must spend all their money.

Therefore, if consumers buy less of a certain good, they still might have some money left and as such might buy more of other goods. So consumers might buy less of the good who's price has risen but they might also buy more of other goods who's price has remained the same.

The substitution effect is one way that the consumers views the price change. All it says is that consumers **tend to buy more of a relatively cheaper good.**

The income effect is another way that the consumer can view the price change. The income effect is more complex and as such we will wait until later to discuss it.

If the income effect and the substitution both tell the consumer to buy more of a good as the price of this good falls (as in the case of a normal good), then that's what they will do.

If the substitution effect tells the consumer to buy more of the good as its price falls and the income effect tells the consumer to buy less of the

good as the price of the good falls, then it is like the consumer is torn between what action to take. If the substitution effect is stronger than the income effect, then the consumer will buy more of the good as the price of the good falls. If the income effect is stronger than the substitution effect, then the consumer will buy less of the good as the price of the good falls and choose to buy other goods instead.

We will look at each of these effects in turn starting with the substitution effect.

### **Substitution Effect**

**THE SUBSTITUTION EFFECT:** means that as the price of a good falls, consumers tend to buy more of it as the ratio of Marginal Utility (MU) to price increases. The consumer will switch away from other goods which are now relatively dearer.

All the substitution effects means is that consumers will buy more of relatively cheaper goods.

The Substitution effect is always positive for all goods- Normal, Inferior and Giffen

The consumer will always tend to buy more of a relatively cheaper good. It is the Substitution Effect that causes the consumer to always buy more of a relatively cheaper good.

### **EXAMPLE**

We have two goods, Pepsi and Pizza. The price of Pepsi rises.

- 1) Which good has become relatively cheaper
- 2) Which good has become relatively dearer
- 3) What the substitution effect says will happen to the demand for each good.

### **ANSWER**

- 1) The Pizza has become relatively cheaper. Even though the price of the pizza has not changed, the price of pepsi has increased and as such pizza has become **RELATIVELY CHEAPER** compared to pepsi.
- 2) The pepsi has become relatively dearer. This is because the price of pepsi has risen and the price of pizza has stayed the same.
- 3) The substitution effect says that consumers will now buy less pepsi and now buy more pizza.

In order to answer any question on consumer behaviour, you must take into account both the substitution effect and income effect. The substitution effect is easy, it just means you buy more of relatively cheaper goods. As the price of a good falls, the substitution effect tells you to buy more. As the price of a good rises, the substitution effect tells you to buy less.

The income effect depends on the type of good in question. That is what we will turn our attention to now.

### Income Effect

Following a change in Price, the consumer experiences a change in real income. This is the income effect

**THE INCOME EFFECT:** refers to the change in consumer's real income following a price change. I.e. if prices rise real incomes fall and if prices fall real incomes rise.

The income effect can be either positive or negative.

What does it mean if a good has a positive income effect?

It means that consumers will buy more of a good as their real income rises.

Normal goods have a positive income effect.

What is a Normal Good?

It is a good that has a positive income effect. A positive income effect means that you buy more of the good as your real income rises and less of the good as your real income falls

What does it mean if a good has a negative income effect.

It means that you have a tendency to buy less of the good as your real income rises.

Inferior goods and Giffen Goods have a negative income effect.

What is an inferior good?

It is a good with a negative income effect. This means that you buy less of the good as your real income rises and more of the good as your real income falls

### **Examples of Income Effect for Normal Goods**

For a Normal good, an increase in real income would cause an increase in demand for the good.

In each of the following cases state what happens to real income and then state how the income effect would affect demand.

#### **1) A Rise in the price of Pepsi**

As the price of Pepsi has risen, this means that the consumers real income has fallen. The consumer can now afford less Pepsi, and as such is poorer in real terms.

As Pepsi is a Normal Good and you buy less normal goods as your real income falls, the income effect would be to buy less Pepsi.

#### **2) A Fall in the price of Fossetts sweets.**

As the price of Fossetts sweets has fallen, this means that the consumers real income has risen. The consumer can now afford more Fossetts sweets, and as such is richer in real terms.

As Fossetts sweets are a normal good and you buy more normal goods as your real income rises, the income effect would be to buy more Fossetts sweets.

#### **3) A Fall in the price of cars**

As the price of cars has fallen, this means that the consumers real income has risen. The consumer can now afford more cars, and as such is richer in real terms.

As cars are a normal good and you buy more normal goods as your real income rises, the income effect would be to buy more cars.

#### **4) A Rise in the price of T.V.**

As the price of T.V.'s have risen, this means that the consumers real income has fallen. The consumer can now afford less T.V.'s, and as such is poorer in real terms.

As T.V.'s are a Normal Good and you buy less normal goods as your real income falls, the income effect would be to buy less T.V.'s.

#### **5) A Rise in the price of Insurance**

As the price of Insurance has risen, this means that the consumers real income has fallen. The consumer can now afford less insurance, and as such is poorer in real terms.

As insurance is a Normal Good and you buy less normal goods as your real income falls, the income effect would be to buy less insurance.

### **Examples of Income Effect for Inferior Goods**

For an inferior good, an increase in real income causes a fall in the demand for the good.

In each of the following cases state what happens to real income and then state how the income effect would affect demand.

#### **1) A Rise in the Price of Potatoes**

As the price of Potatoes has risen, this means that the consumers real income has fallen. The consumer can now afford less Potatoes, and as such is poorer in real terms.

As potatoes are an inferior good and you buy more of an inferior good as your real income falls, the income effect would be to buy more potatoes.

#### **2) A Fall in the Price of Rice.**

As the price of rice has fallen, this means that the consumers real income has risen. The consumer can now afford more rice, and as such is richer in real terms.

As rice is an inferior good and you buy less of an inferior good as your real income rises, the income effect would be to buy less rice.

#### **3) A Fall in the Price of Bus Journey's**

As the price of bus journey's has fallen, this means that the consumers real income has risen. The consumer can now afford more bus journey's, and as such is richer in real terms.

As bus journey's are an inferior good and you buy less of an inferior good as your real income rises, the income effect would be to buy less bus journey's.

#### **4) A Rise in the Price of minced meat**

As the price of minced meat has risen, this means that the consumers real income has fallen. The consumer can now afford less minced meat, and as such is poorer in real terms.

As minced meat is an inferior good and you buy more of an inferior good as your real income falls, the income effect would be to buy more minced meat.

We have looked at both the substitution effect and the income effect separately. In order to find out how much a consumer will increase or decrease the quantity of a good that they buy following a price change, we must combine these two effects.

In order to combine these two effects, we go back to the steps that we discussed on page 16 of this note which have been repeated on the next page.

### **Steps to follow when Assessing Consumer Choice**

To answer questions on the overall price effect, ask yourself the following questions

- 1) Has the good become relatively cheaper or relatively more expensive?
- 2) What does the substitution effect say about how this would affect demand?
- 3) Have you become richer or poorer in real terms?
- 4) Does the good have a negative or positive income effect?
- 5) What does the income effect say about how this would affect demand?
- 6) Do these effects work in the same direction or opposite?
- 7) If they work in opposite directions, ask which effect is bigger

### **EXAMPLE**

Explain individually the

- Substitution Effect
- Income Effect

combine to give the overall price effect on each of the following goods.

- |                             |             |
|-----------------------------|-------------|
| a) The price of pepsi falls | Normal Good |
| b) The price of cars rise   | Normal Good |

- |                                     |               |
|-------------------------------------|---------------|
| c) The price of bus journey's rise  | Inferior Good |
| d) The price of bus journey's falls | Inferior Good |
| e) The price of potatoes fall       | Giffen Good   |
| f) The price of rice rises          | Giffen Good   |

### **Answer to Question (a)**

1) Has the good become relatively cheaper or relatively more expensive?

As the price of the good has fallen, the good has become relatively cheaper

2) What does the substitution effect say how this would effect demand?

The substitution effect says that consumers always buy more of a relatively cheaper good. As this good has become relatively cheaper, the substitution effect says that you will buy more of this good.

3) Have you become richer or poorer in real terms?

As the Good has become relatively cheaper, the consumer is richer in real terms as they can afford to buy more of the good.

4) Does the good have a negative or positive income effect?

Pepsi is a normal good and as such has a positive income effect.

5) What does the income effect say about how this would effect demand?

As Pepsi is a normal good with a positive income effect, that has become cheaper in real terms, the income effect says that you will buy more of this good.

6) Do these effects work in the same direction or opposite.

The substitution effect says buy more as it has become relatively cheaper and the income effect says buy more as you have become richer in real terms. Therefore, as the price falls you buy more pepsi.

### **Answer to question (b)**

1) Has the good become relatively cheaper or relatively more expensive?

As the price of the good has risen, the good has become relatively more expensive

**2) What does the substitution effect say how this would effect demand?**

The substitution effect says that consumers always buy more of a relatively cheaper good. As this good has become relatively dearer, the substitution effect says that you will buy less of this good.

**3) Have you become richer or poorer in real terms?**

As the Good has become relatively dearer, the consumer is poorer in real terms as they can afford to buy less of the good.

**4) Does the good have a negative or positive income effect?**

Cars are a normal good and as such has a positive income effect.

**5) What does the income effect say about how this would effect demand?**

As cars are a normal good with a positive income effect, that has become dearer in real terms, the income effect says that you will buy less of this good.

**6) Do these effects work in the same direction or opposite.**

The substitution effect says buy less as it has become relatively dearer and the income effect says buy less as you have become poorer in real terms. Therefore, as the price rises you buy fewer cars.

**Answer to Question (c)****1) Has the good become relatively cheaper or relatively more expensive?**

As the price of the good has risen, the good has become relatively more expensive

**2) What does the substitution effect say how this would effect demand?**

The substitution effect says that consumers always buy more of a relatively cheaper good. As this good has become relatively dearer, the substitution effect says that you will buy less of this good.

**3) Have you become richer or poorer in real terms?**

As the Good has become relatively dearer, the consumer is poorer in real terms as they can afford to buy less of the good.

**4) Does the good have a negative or positive income effect?**

Bus Journey's are an inferior good and as such has a negative income effect.

**5) What does the income effect say about how this would effect demand?**

As Bus Journey's are an inferior good with a negative income effect, that has become dearer in real terms, the income effect says that you will buy more of this good.

**6) Do these effects work in the same direction or opposite.**

The substitution effect says buy less as it has become relatively dearer and the income effect says buy more as you have become poorer in real terms. Therefore, we have to see whether the substitution effect or the income effect is bigger, as each is telling you to do different things.

**7) If they work in opposite directions, ask which effect is bigger?**

There are two possible options. Either the substitution effect is stronger than the income effect and the consumer buys less bus journeys. Or the Income effect is stronger than the substitution effect and the consumer buys more bus journeys. As we have been told in the question that bus journey's are an inferior good, we know that the substitution effect is always stronger than the income effect (that is one definition of an inferior good). For an Inferior Good, the substitution effect is always stronger than the income effect. Therefore, as the price of bus journeys rise, people will buy less bus journeys as the positive substitution effect is stronger than the negative income effect.

**Answer to Question (d)**

**1) Has the good become relatively cheaper or relatively more expensive?**

As the price of the good has fallen, the good has become relatively cheaper.

**2) What does the substitution effect say how this would effect demand?**

The substitution effect says that consumers always buy more of a relatively cheaper good. As this good has become relatively cheaper, the substitution effect says that you will buy more of this good.

**3) Have you become richer or poorer in real terms?**

As the Good has become relatively cheaper, the consumer is richer in real terms as they can afford to buy more of the good.

**4) Does the good have a negative or positive income effect?**

Bus Journey's are an inferior good and as such has a negative income effect.

**5) What does the income effect say about how this would effect demand?**

As Bus Journey's are an inferior good with a negative income effect, that has become cheaper in real terms, the income effect says that you will buy less of this good.

**6) Do these effects work in the same direction or opposite.**

The substitution effect says buy more as it has become relatively cheaper and the income effect says buy less as you have become richer in real terms. Therefore, we have to see whether the substitution effect or the income effect is bigger, as each is telling you to do different things.

**7) If they work in opposite directions, ask which effect is bigger?**

There are two possible options. Either the substitution effect is stronger than the income effect and the consumer buys more bus journeys. Or the Income effect is stronger than the substitution effect and the consumer buys less bus journeys. As we have been told in the question that bus journey's are an inferior good, we know that the substitution effect is always stronger than the income effect (that is one definition of an inferior good). For an Inferior Good, the substitution effect is always stronger than the income effect. Therefore, as the price of bus journeys fall, people will buy more bus journeys as the positive substitution effect is stronger than the negative income effect.

**Answer to Question (e)****1) Has the good become relatively cheaper or relatively more expensive?**

As the price of the good has fallen, the good has become relatively cheaper.

**2) What does the substitution effect say how this would effect demand?**

The substitution effect says that consumers always buy more of a relatively cheaper good. As this good has become relatively cheaper, the substitution effect says that you will buy more of this good.

**3) Have you become richer or poorer in real terms?**

As the Good has become relatively cheaper, the consumer is richer in real terms as they can afford to buy more of the good.

**4) Does the good have a negative or positive income effect?**

Potatoes are a giffen good and as such has a negative income effect.

**5) What does the income effect say about how this would effect demand?**

As Potatoes are a giffen good with a negative income effect, that has become cheaper in real terms, the income effect says that you will buy less of this good.

**6) Do these effects work in the same direction or opposite.**

The substitution effect says buy more as it has become relatively cheaper and the income effect says buy less as you have become richer in real terms. Therefore, we have to see whether the substitution effect or the income effect is bigger, as each is telling you to do different things.

**7) If they work in opposite directions, ask which effect is bigger?**

There are two possible options. Either the substitution effect is stronger than the income effect and the consumer buys more potatoes. Or the Income effect is stronger than the substitution effect and the consumer buys less potatoes. We have been told in the question that potatoes are a giffen good, we know that the income effect is always stronger than the substitution effect (that is one definition of an giffen good). For a Giffen Good, the income effect is always stronger than the substitution effect. Therefore, as the price of potatoes fall, people will buy less potatoes as the positive substitution effect is weaker than the negative income effect.

**Answer to Question (f)**

**1) Has the good become relatively cheaper or relatively more expensive?**

As the price of the good has risen, the good has become relatively dearer.

**2) What does the substitution effect say how this would effect demand?**

The substitution effect says that consumers always buy more of a relatively cheaper good. As this good has become relatively dearer, the substitution effect says that you will buy less of this good.

**3) Have you become richer or poorer in real terms?**

As the Good has become relatively dearer, the consumer is poorer in real terms as they can afford to buy less of the good.

#### 4) Does the good have a negative or positive income effect?

Rice is a giffen good and as such has a negative income effect.

#### 5) What does the income effect say about how this would effect demand?

As rice is a giffen good with a negative income effect, that has become

Type of Good	Substitution Effect		Income Effect	=	Price Effect
(1) Normal Goods	+	+	+	=	P↓ Q↑
(1) Normal Goods	+	+	+	=	P↑ Q↓
(2) Inferior Goods	+	>	-	=	P↓ Q↑
(2) Inferior Goods	+	>	-	=	P↑ Q↓
(3) Giffen Goods	+	<	-	=	P↑ Q↑
(3) Giffen Goods	+	<	-	=	P↓ Q↓