Chapter 2
Market analysis

Market analysis is concerned with collecting and interpreting data about customers and the market so that businesses adopt a relevant marketing strategy. Businesses carry out market research so that they can identify, anticipate and ultimately fulfil the needs and wants of their customers - both existing and potential. Why is it that some companies spend millions of pounds on market research whilst others spend nothing? The answer lies in the nature of the product and the market in which the business operates.

When trying to determine an appropriate marketing strategy, there is a huge range of potential data available to decision makers. This data can be divided into two types - quantitative and qualitative. Quantitative data is based on numerical information that can be statistically analysed. This information is from the results to questions such as 'What is the average weekly spend of our customers?' Qualitative data, on the other hand, is information about decisions based on emotions, feelings, opinions and motivations. An example of a question that leads to qualitative data is 'What is it about a brand that motivates you to make a purchase?' Both types of data provide information that is useful in the decision making process.

Quantitative data allows a business to gather and interpret data to answer questions such as:

- Does a market exist and what is the size of the market for the business's products and services?
- What are the demographics of the target market?
- What segments exist within the target market?
- Are segments large enough to be a worthwhile target?
- What is the level of brand awareness that exists in the target market?
- What are customers' buying habits?
- In what ways is the target market evolving?

Qualitative data allows businesses to explore answers to questions such as:

- What are customers' motivations when purchasing a product?
- What are customers' views on competitor products?
- What was the impact on viewers' feelings in response to a visual marketing campaign?
- How attitudes of existing and potential customers changed in response to a marketing strategy.

Analysing data collected through quantitative and qualitative techniques

Data analysis follows the collection of data in the market analysis process, in order that a business arrives at relevant deductions, which informs their marketing strategy. For example, data might show that disposable incomes of customers are on average falling by 2% a year (quantitative) and that brand loyalty to market leaders is declining (qualitative). Therefore, retailers might use this information to focus more on stocking unbranded goods in their stores that offer better value for money.

Elasticity of demand

The concept of elasticity of demand was introduced in the AS content (Chapter 3).

The notes below revisit this topic and develop this understanding, including how to calculate both price and income elasticity of demand, how to interpret the results of both calculations and exploring how revenue can be impacted by changes in price and income.

When prices or incomes change, consumers might change their spending habits. They may buy more of one type of good if they earn more, or less of another. Likewise, as the price of a good increases consumers may switch to purchasing something else, or they may feel that they have to continue buying the good, no matter what the price. Businesses need to know what will happen if they raise or lower the price of their goods, or if consumer income falls or rises, since a change in price and/or income could have an effect on demand levels and revenue.

Simple supply and demand analysis tells us that, all things being equal, if a business raises the price of a product, the quantity demanded by its customers will generally fall, and if they lower the price of the product the quantity demanded will rise. In order to make an informed decision the business will need to know by **how much** demand will fall or rise as a result of the increase or reduction in price, because this could have an effect on revenue.

We will first consider how to calculate and interpret price elasticity of demand (PED) and then income elasticity of demand (YED).

Price elasticity of demand

Price elasticity of demand measures the responsiveness of demand to a change in price.

Price elasticity of demand is calculated by using the following formula:

Price elasticity of demand =

$$\textbf{Price elasticity of demand} = \frac{\textbf{\% change in quantity demanded}}{\textbf{\% change in price}}$$

Worked example 1

A business increases the price of its product by 5p, from an original price of 40p. Sales fall from 450 000 to 375 000. What is the price elasticity of demand for this product?

Step 1: Calculate % change in quantity demanded:

The change is -75 000. So -75 000 as a % of the original figure of 450 000.

$$\frac{-75\,000}{450\,000} \times \frac{100}{1} = -16.67\%$$

So the % change in the quantity demanded is -16.67%.

Step 2: Calculate % change in price:

Change is 5p. So 5p as a % of 40p.

$$\frac{5}{40} \times \frac{100}{1} = 12.5$$

So the % change in price is 12.5%.

Step 3: Use the formula:

$$\text{Price elasticity of demand} = \frac{\text{\% change in quantity demanded}}{\text{\% change in price}}$$

$$\frac{-16.7\%}{12.5\%} = -1.33$$

So the price elasticity of demand is -1.33.

As this result is greater than 1, the price elasticity of demand is said to be **elastic**.

Worked example 2

Symonds Sausages Ltd. raised the price of their premium sausages by 10% and sales fell by 5%. Therefore the price elasticity of demand for premium sausages is:

$$\frac{\text{\% change in quantity demanded}}{\text{\% change in price}} \quad \frac{-5\%}{10\%} = -0.5$$

So the price elasticity of demand is - 0.5.

As this result is below 1 the price elasticity of demand is said to be inelastic.

As the price and quantity demanded will always change in opposite directions the calculation of price elasticity of demand will always be negative. However, it is custom to ignore the minus sign and just refer to the number itself when interpreting the price elasticity of demand calculation.

All price elasticity of demand values can then be placed into one of three categories:

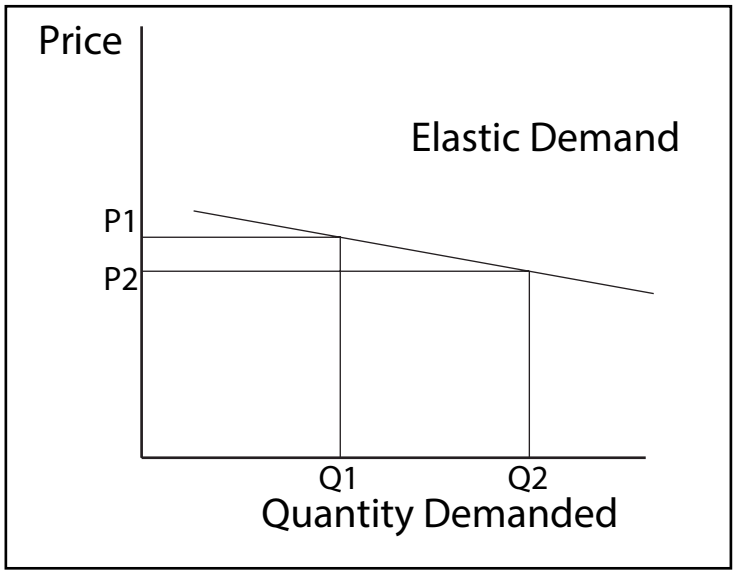
PRICE ELASTIC **(number is greater than 1) – this means that a change in price will cause a more than proportional change in the quantity demanded. The level of demand is sensitive to a change in price.**

Price goes up, demand falls dramatically.

Price goes down, demand rises dramatically.

In markets approaching perfect competition, elasticity of demand is likely to be highly elastic. Given the conditions of near perfect competition, where goods are largely undifferentiated, this impact of the change in price on demand levels is quite predictable. Why should people buy a higher priced good when a virtually identical good is immediately available at a lower price?

With elastic demand, a change in price (in either direction) will cause a more than proportional change in the quantity demanded. This is shown in the graph below:



A fall in price from P1 to P2, sees a more than proportional increase in quantity demanded from Q1 to Q2. This means that although revenue from each item sold has fallen, sales have increased more than proportionately which means that total revenue has increased. From a business point of view, if demand for the good is elastic then revenues will increase if your price falls, so it can make sense to cut prices.

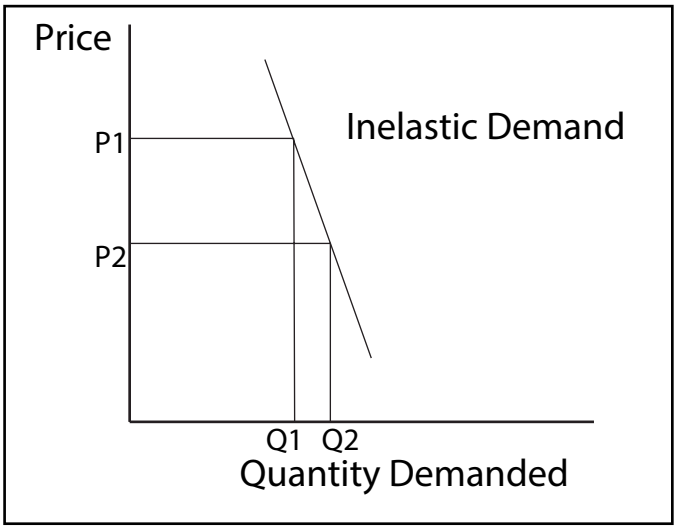
PRICE INELASTIC **(number is less than 1) - If a good has inelastic price elasticity of demand then a change in price causes a less than proportional change in the quantity demanded.**

Price goes up, demand falls just a little.

Price goes down demand increases just a little.

Inelastic price elasticity of demand is likely to occur when the levels of competition are low, when there are a few substitutes, the goods are necessities or perhaps addictive. In these circumstances the business involved has much more control over the price than companies in highly competitive markets.

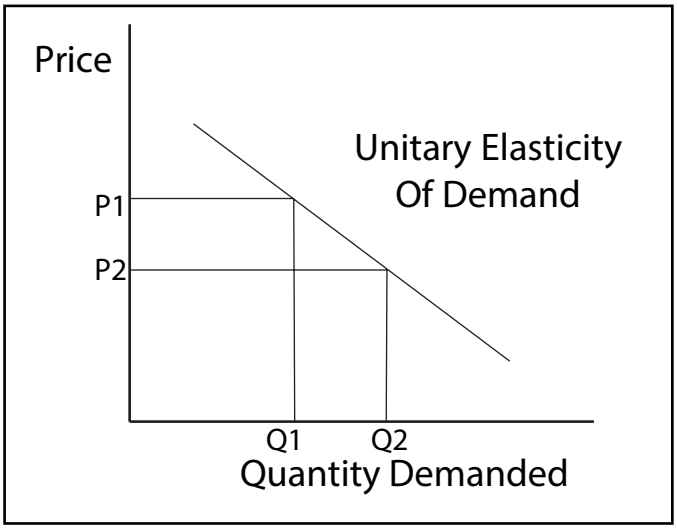
With inelastic demand, a change in price (in either direction) will cause a less than proportional change in the quantity demanded. This is shown in the following graph:



A fall in price from P1 to P2, sees a less than proportional increase in quantity demanded from Q1 to Q2. This means that although sales have increased, the fall in revenue from each item sold results in total revenue falling. From a business point of view, if demand for the good is inelastic, revenues will fall if your price falls, so it rarely makes sense to cut prices.

***UNITARY ELASTIC* (number is equal to 1) – If a good has unitary price elasticity of demand then a change in price will cause an equal and proportional change in the quantity demanded.**

With unitary elastic demand, a change in price (in either direction) will cause a proportional change in the quantity demanded. This is shown in the graph below.



A fall in price from P1 to P2 sees an equal and proportional increase in quantity demanded from Q1 to Q2. This means that although sales have increased, the fall in revenue from each item sold results in total revenue remaining the same. From a business point of view it makes sense to cut prices if increased output reduces costs as this will lead to an increase in profits.

In summary when calculating price elasticity of demand:
• If the number is less than 1, the good has inelastic demand.
• If the number is equal to 1, the good has unitary elasticity demand.
• If the number is greater than 1, the good has elastic demand.

Examples of products with different price elasticity of demand:

	Price elasticity of demand
Inelastic	Necessities, such as water, power, petrol, basic foods. Addictive goods, such as cigarettes. The stronger the branding, the less alternatives (substitutes) are acceptable to customers. Good branding can therefore make a product more inelastic.
Elastic	Goods that have lots of substitutes and are in a very competitive market, such as bread, cereals, chocolate bars. Luxury goods, goods that can be done without e.g. sport cars, exotic holidays, organic bread. Expensive goods that are a big percentage of income such as sports cars.

Price elasticity and sales revenue

- PED is important when deciding on a pricing strategy. This is because the price of a product affects sales revenue.
- If demand is price elastic, then putting up the price will lead to a fall in sales revenue. The increase in price will be more than offset by a decrease in sales. Conversely, lowering price when demand is price elastic will lead to a rise in sales revenue. The fall in price will be more than offset by an increase in sales.
- If demand is price inelastic a rise in price will lead to a rise in sales revenue. A fall in price will lead to a fall in sales revenue.
- Changing the price can therefore affect sales revenue. But the exact effect, and whether it leads to an increase or decrease, depends on the price elasticity.

Price elasticity and profit

- Price elasticity also has an effect on profit. Profit is calculated as sales revenue minus costs. Costs are likely to change with sales, the more that is produced, the higher the costs.
- If demand is price inelastic, a rise in price will lead to lower sales but increased sales revenue, but the lower sales will mean lower variable costs. So profits will increase, not just from higher sales revenue but also from lower costs.
- If demand is price elastic, an increase in sales revenue can be achieved by lowering price and raising sales. But higher sales also mean higher costs. In this situation, higher profits will only occur if the increase in sales revenue is greater than the increase in costs.

Income elasticity of demand

Income elasticity of demand is the responsiveness of demand to changes in income.

Businesses also want to know how rises or falls in consumers' income affect the demand for their products. Business managers will look at the relationship between changing (increasing or falling) incomes and changing demand levels for different types of goods or services. Generally real incomes increase over time ('real' means allowing for the impact of inflation), leading to increased wealth and rising demand for most, but not all, goods and services. As people get richer they consume more, driving up demand for many goods and services.

Income elasticity of demand is calculated by using the following formula:

$$\textbf{Income elasticity of demand} = \frac{\textbf{\% change in quantity demanded}}{\textbf{\% change in income}}$$

<u>Worked example 1</u>

If average incomes increase from £400 per week to £440 per week and at the same time a business selling French Cheese increases sales from 1 200 units to 1 500 units. What is the YED (income elasticity) of French Cheese?

Step 1. Calculate % change in quantity demanded:

Change is 300. So 300 as a % of original figure.

$$\frac{300}{1200} \times \frac{100}{1} = 25$$

So the % change in the quantity demanded is 25%.

Step 2: Calculate % change in income:

$$\frac{40}{400} \times \frac{100}{1} = 10$$

So the % change in income is 10%

Step 3: Use the formula:

$$\textbf{Income elasticity of demand} = \frac{\textbf{\% change in quantity demanded}}{\textbf{\% change in income}}$$

$$\textbf{Income elasticity of demand} = \frac{25\%}{10\%} = 2.5$$

So the income elasticity of demand is 2.5.

The income elasticity of demand for French Cheese is **positive** and **greater than 1**.This means that demand rises more than proportionate to the change in income. Consumers spend proportionately more of their income on the product as their income rises. Demand is **income elastic**. This is usually the case for **luxury** products and services.

Worked example 2

Symonds Sausages have found that if incomes increase by 5% the demand for their premium sausages increases by 10%.

Therefore the income elasticity of demand for Symonds premium sausages is:

$$\frac{\textbf{\% change in quantity demanded}}{\textbf{\% change in income}} \quad \frac{10\%}{5\%} = 2$$

So the income elasticity of demand is 2.

Since the percentage increase in the sales of premium sausages is greater than the percentage increase in incomes we can conclude that they are luxury goods and that if incomes continue to rise Symonds Ltd should expect to sell even more of their premium sausages. In order to be prepared for this the company might have to consider such things as purchasing new machinery, finding new premises and looking for increased supplies. All of these things need to be planned for, since they take time to implement. Knowledge of the income elasticity of demand for their products is therefore of considerable importance to businesses like Symonds Ltd.

Worked example 3

Lighter Sounds are expecting average incomes to rise over the next year from £35 000 a year to £36 000 a year. They anticipate that the sales of their smaller size television sets will fall from 1000 sets a year to 800 as customers go for the larger sizes.

The income elasticity of demand is:

$$\frac{\textbf{\% change in quantity demanded}}{\textbf{\% change in income}} \quad \frac{-20\%}{2.86\%} = -7$$

So the income elasticity of demand is -7.

Since the income elasticity is **less than zero** we can conclude that the income elasticity is negative and that small televisions are **inferior** goods.

If Lighter Sounds Ltd anticipates that incomes will continue to rise it will clearly need to stock less of this type of good and concentrate on the normal and luxury goods in its product portfolio.

If income elasticity is positive for a particular product and is **between 0 and 1,** then demand is income inelastic and is it is said to be a **normal** good.

Interpreting the results of YED

All income elasticity of demand values can then be placed into one of three categories:

ELASTIC **(number is greater than 1)** ***(positive and high)*** **– this means that a change in income causes a more than proportional change in the quantity demanded. This result usually applies to** ***luxury*** **goods or services. For example, if consumer incomes decrease then this might result in a fall in cruise holidays or designer handbags.**

INELASTIC **(number is between 0 and 1)** ***(positive and low)*** **– this means that a change in income causes a less than proportional change in the quantity demanded. This result usually applies to** ***normal*** **goods or services. For example, if consumer income increases then this might encourage people to eat more fresh fruits and vegetables, thereby increasing the demand for these goods.**

NEGATIVE **(number is less than 0) (*negative*) – this means that if income rises then demand falls, and vice versa, if income falls then demand rises. This usually applies to** ***inferior*** **goods or services, where superior goods and services are available when a consumer has the money to purchase them. Examples of this includes supermarket own brand products, such as Tesco Value Baked Beans. If consumer income increases, then people may be able to afford Heinz Baked Beans instead. The opposite is that if consumer incomes fall, people might try to cut back on their expenditure and buy cheaper alternatives for the same type of good or service.**

Impact of changes of price and income on business revenue

Businesses use PED and YED to calculate how much demand will change if there is a change in price or income. The resulting change in demand can lead to a change in revenue. Therefore, using PED and YED to evaluate the impact of revenue changes is very important to businesses, since changes in revenue could have an impact on their levels of success and meeting targets.

The impact on revenue for changes in price (PED)

***ELASTIC DEMAND* – If price falls, then businesses see a greater increase in the quantity demanded. Even though the revenue from each product sold has fallen. As the amount sold has increased more than the decrease in price, businesses will achieve higher total revenue levels. Businesses can use this information to influence lower pricing strategies, since if prices were to decrease, they will see an increase in revenue through more than proportionate sales. However, if price increases, then quantity demanded will fall more than proportionate, which leads to a fall in revenue.**

***INELASTIC DEMAND* – If price falls, then businesses see a less than proportionate increase in the quantity demanded. Therefore, even though sales have increased, the fall in revenue from each item sold is greater than the increase in quantity sold, leading to a fall in total revenue. Businesses with an inelastic good would not readily lower prices, all other things equal, because doing so would lead to a fall in revenue since quantity demanded does not change significantly. However, if businesses were to increase prices, they will see an increase in revenue since quantity demanded will decrease less than the change in price with goods that have inelastic demand. This results in greater revenue. Arguably, the objective of most businesses would be to make the price elasticity of their products more inelastic (perhaps through increasing consumer loyalty or through advertising to increase brand image) to achieve higher revenues.**

The table below summarises if a business increases or decreases the price of its goods how the level of price elasticity of demand (PED) will affect revenue:

PED Inelastic	
Increase Prices	Revenue Increases
Decrease Prices	Revenue Falls
PED Elastic	
Increase Prices	Revenue Falls
Decrease Prices	Revenue Increases

Advantages of knowing price elasticity of demand

There are several reasons why a business may gather information about the PED of its products. Gathering data on how consumers respond to changes in price can help reduce risk and uncertainly. More specifically, knowledge of PED can help the business forecast its sales and set its price. In order to make an informed decision the business will need to know by how much demand will fall or rise as a result of the increase or reduction in price. However, this depends on the validity of the data; it is difficult to gather accurate data on consumer demand.

The impact on revenue for changes in income (YED)

Knowing the YED of a product may help a business respond to changing economic situations and help the business to plan ahead. If a business knows the income elasticity of demand for their product(s) they can use this information to help them develop its strategy and its product portfolio. Many UK businesses are likely to focus on normal and luxury products as in general terms the economy tends to grow and incomes tend to go up. However, in times of recession, where incomes may go down, inferior goods could be profitable for businesses as consumers may cut back on spending and look for cheaper and less quality products.

The following example shows how a business that knows the income elasticity of its products can use the information to plan ahead:

A business sells adventure holidays resulting in a total sale revenue of £175 000 per year. Adventure holidays have an income elasticity of 2.5. What will happen to demand and revenue if incomes increase by 10%?

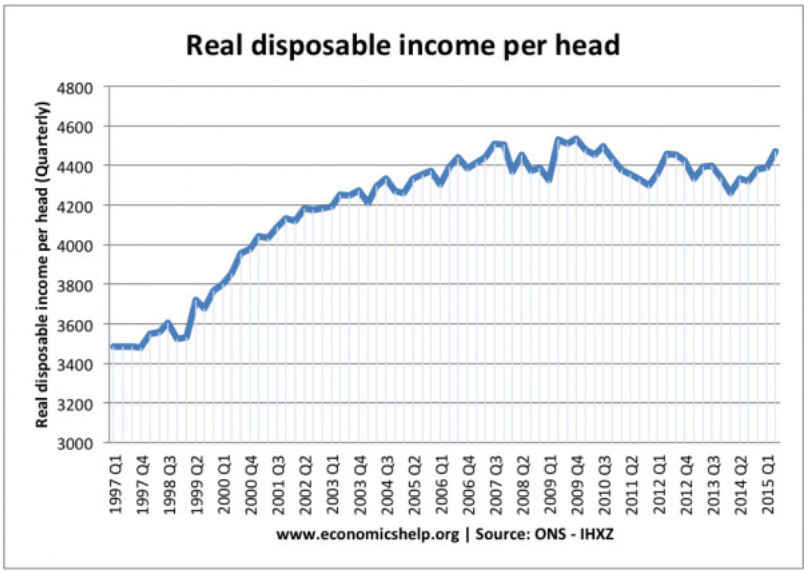
Step 1: To calculate the change in demand, multiply the increase in incomes (10%) by YED (2.5). Therefore, demand increased by 25%.

Step 2: Calculate increase in sales, due to the change just add 25% to current sales:
£175 000 X 25% = £43 750

So the total sales is £175 000 + £43 750 = £218 750

If a business is producing inferior goods – goods with a negative YED	If a business is producing luxury goods - goods with YED of above 1 (positive and high). Then this means it is income elastic
Demand will increase during periods of recessions and economic downturns. Therefore retailers may be advised to advertise their value products. This may attract customers trying to survive on a tight budget. If a business is producing an inferior good and economic growth in the long term is positive, then they should consider diversifying into producing normal goods.	This means that demand will be sensitive to changes in income. High economic growth may lead to a boom in sales but the business should be aware that this boom in sales could come crashing to an end if the economy went into recession. Therefore, businesses should be nervous about overstretching themselves. There may also be a case to diversify.

The graph below shows that throughout most of the period between 1997 and 2015 real disposable incomes have increased. However, the financial crisis of 2007 started a period of time when incomes fell and since then income growth has been less stable. This period of low economic growth proved to be an opportunity for businesses that specialised in selling goods at discount prices. Pound shops and supermarkets such as Aldi and Lidl flourished at the expense of more established businesses such as Tesco. Use the graph to analyse how incomes have changed since 2007 and suggest how businesses could use this information to determine their strategy.



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Discussion themes

What is meant by the term price elasticity of demand?

What does it mean when a product is described as price inelastic? Give two examples.

The products below have different price elasticities of demand. Complete the table by explaining what would happen to total revenue with the price changes.

	Price elasticity of demand	If price increased	If price decreased
Product A	0.25		
Product B	2.1		

Suggest suitable examples for Product A and B.

What is meant by the term income elasticity of demand?

In 2014, the average net household income in the UK was £25 000 and sales of digital television sets was 6 million. A year later average net household incomes had risen to £27 000 and sales of digital television sets had reached 6.7 million.

Using this information, calculate the income elasticity of demand for digital television sets.

Discuss the usefulness of the theory of income elasticity of demand to a manufacturer of smart phones.

How can a business attempt to reduce the price elasticity of its products?

What is the difference between a normal and inferior good?

Explain how a business can use information on price and income elasticity of demand to help plan its business activities.

Explaining income elasticity of demand:

http://www.tutor2u.net/economics/reference/income-elasticity-of-demand

https://www.youtube.com/watch?v=4oj_lnj6pXA