

1.2.4

Price Elasticity of Demand (PED)

1 point	2 points	3 points
A. Where would you find 'market clearing'?	D. Compare the terms risk and uncertainty	G. Explain the limitations of market research
B. What does 'added value' mean?	E. Compare consumer needs and wants	H. Explain the purpose of product differentiation
C. Define the term 'seasonality'	F. Give two ways to add value to fish products	I. Explain the characteristics of mass markets

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From Edexcel

- a) Calculation of price elasticity of demand
- b) Interpretation of numerical values of price elasticity of demand
- c) The factors influencing price elasticity of demand
- d) The significance of price elasticity of demand to businesses in terms of implications for pricing
- e) Calculation and interpretation of the relationship between price elasticity of demand and total revenue

Starter

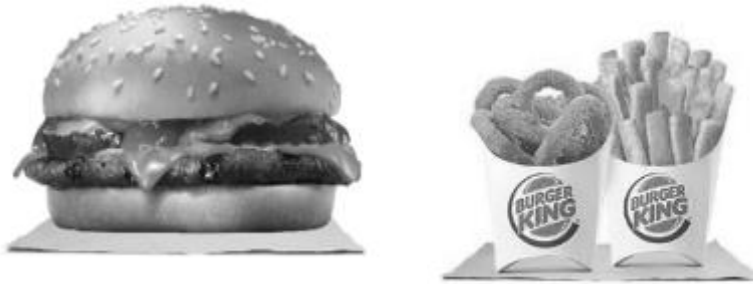
- **If the price of a Big Mac goes up to £10 will there be an impact on demand? Will customers still buy Big Macs?**



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The link between demand and price

- 1. When prices go up, customers demand less. That statement makes logical sense and all businesses know this, so they try to _____ putting prices up.**
- 2. If the costs of the business rise management might try and _____ the costs so that the customers do not have to pay more, because this will affect demand for their product.**
- 3. For example, if McDonald's put up the price of a Big Mac to £10 customer demand will decrease, sales _____ for that product will decrease and profits will decrease.**
- 4. There is another argument that customers may switch to an available substitute, and it may be McDonald's Chicken Nuggets, or the customer may switch to Burger King.**



Definition: PED

- **PED stands for Price Elasticity of Demand**
- **PED measures the responsiveness of demand to a change in price**
- **PED values can be either _____ or _____**
- **PED values can be calculated so that a business can work out if a product or service has elastic or inelastic demand**
- **PED values are always a _____**

PED calculations Top Tips

- **PED calculations always come out as a negative number e.g. -0.23**
- **This is because there is a relationship between price and demand**
- **As price increases demand decreases (causing a negative demand figure)**
- **As price decreases demand increases (causing a negative price figure)**
- **In either case the PED value would be a _____**



To calculate PED

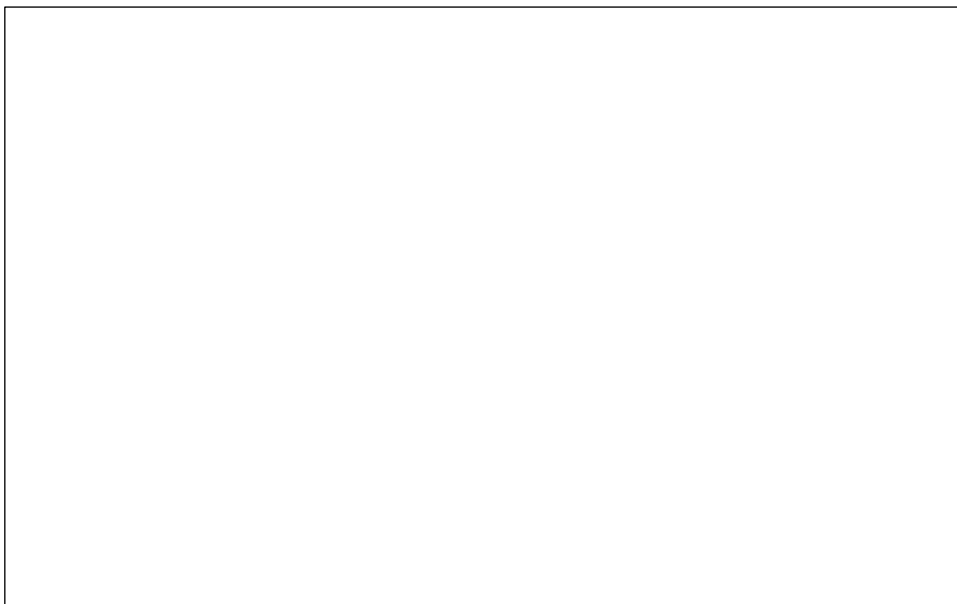
You need two formulae:

1. PED formula
2. Percentage (%) change formula

1. PED formula



2. Percentage (%) change formula



Percentage (%) change formula walkthrough example

- The price of a product for sale rises from £5 to £7, calculate the percentage change using the formula
- Apply the formula: New is £7, Old is £5
- What is the % change?
- $7 - 5 = 2 \div 5 = 0.4$
- $0.4 \times 100 = 40\%$ change in price
- Show your answer to two decimal places
- Try some more examples on the next slide

Example calculations percentage (%) change

Example calculations percentage (%) change

	Product A	Product B	Product C	Product D
Old Price	£300	£55	£70	£60
New price	£290	£29	£77	£65
Percentage (%) Change				

Example PED Calculation: sunglasses shop

- **Sam owns a sunglasses shop**
- **She wants to know how elastic the demand for some of her products is**
- **This will help her to decide if she should put her prices up or not.**
- **If she puts the price of her best-selling sunglasses up from £35 to £55 then she expects to sell 45% less**
- **Calculate PED and comment on the elasticity of demand**

Answer to the example PED calculation: sunglasses shop

- **The PED value for Sam's Sunglasses business is -0.79**
- **The PED value is between 0 and 1**
- **This means the price is inelastic**
- **This means that her customers will continue to buy if she puts her prices up**

What does the PED value mean?

Value greater than 1

- Elastic demand
- Demand for the product is very sensitive to a change in price
- Customers will switch to a different brand or alternative product if the price rises
- Examples:

Values between 0 and 1

- Inelastic demand
- Very little change in demand with a change in price
- Customers will pay the higher price to get the product
- Examples

Elastic demand

- **Products and services that have elastic demand are sensitive to a change in price**
- **This means if the business puts prices up, then demand will decrease**
- **If prices decrease then demand will increase, because customers love a bargain**

Why do take-away burgers have elastic demand?

Inelastic demand

- **Inelastic demand is for goods means if the price is changed the demand stays the same**
- **With inelastic demand there are few substitutes (e.g. insulin, petrol)**

- Generally addictive products have inelastic demand – can you explain why?

Example PED calculation 1

- John runs a greengrocers in a high street.
- He decides to increase the price of a pack of tomatoes from £1.50 to £1.75 and he knows that demand will probably fall by about 25%
- Calculate and comment on the PED value of the tomatoes



Example PED calculation 2

- Kathryn makes scarves, they are not selling very well, there is lots of competition in the high street.
- She has decided to reduce the price of her scarves from £15 each to £8 each. She expects to see a rise in demand of 80%.
- Calculate the PED value of the scarves and comment on her decision



Example PED calculation 3

- Guralpal owns a sandwich bar, he sells soups and sandwiches. They are selling well, but he would like to make more revenue, but he is worried if he puts his prices up that his customers will go elsewhere.
- So, he thinks he might increase the price from £5 to £9 for a soup and sandwich combo meal and he estimates that demand may decrease by only 10%
- Calculate the PED value of one of his combo meals and comment on his decision



The factors influencing price elasticity of demand

- **The price elasticity of demand depends on factors like availability of substitutes, necessity versus luxury status, proportion of income spent on the good, and consumer _____**
- **How durable a product is and how _____
(habit forming) it is will also be a factor**



PED and pricing

- **The significance of price elasticity of demand (PED) for businesses lies in its impact on pricing _____**
- **Understanding PED helps businesses decide whether increasing or decreasing prices will boost _____**
- **For products with elastic demand, a price increase may decrease total revenue, while for _____ demand, higher prices may lead to increased revenue**
- **PED enables better pricing decisions, based on consumer _____ to price changes**



PED and total revenue

- A. There is a relationship between PED and Total Revenue**
- B. Total revenue is calculated by: $TR = \text{Quantity} \times \text{Price}$**
- C. Total revenue is a measure of how much can be made from selling products / services (before costs have been taken off)**
- D. A business will have an objective of maximising profits, to do this it will need to increase total revenue**
- E. Total revenue can be increased by increasing price**

F _____

Plenary Quiz – rearrange the formula

- **Earbuds are £20 and the price has increased to £23**
- **PED for earbuds is -0.8**
- **Calculate the percentage (%) change in quantity demanded for earbuds**
- **You have 4 minutes**

Gym surge

Britons are trying to get fitter with a bigger than usual January rush this year to join gym chains, as people resolve to work off their Christmas overindulgence. The media focus on health and fitness has also helped encourage less active people to exercise more. Fitness First, a health club chain, stated that membership retention is at one of its highest levels.

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A spokesman said: "Every day we are bombarded with messages in the media on how an hour of exercise, three times a week, can help boost overall life expectancy and wellbeing."

(Source: adapted from <http://www.express.co.uk/finance/city/633097/Gym-surge-Greggs-sales-UK-interest-rates-Arla>, 10 January 2016)

The average price elasticity of demand for clubs in the health and fitness market is estimated to be -2.

- (c) Assess the likely impact of media health campaigns on the price elasticity of demand for health and fitness clubs.

(12)

Extract D

Estimated effects of price changes on quantity demand for games consoles in 2004

	Change in price	Change in quantity demanded
PlayStation 2	0.59%	−2.10%
Xbox	1.47%	−4.47%

Using the data in Extract D, calculate the difference in Price Elasticity of Demand for PlayStation 2 and the Xbox. State your answer to 2 decimal places. You are advised to show your working.

(4)

Extract C - LEGO history

The name LEGO is an abbreviation of the two Danish words 'leg godt', meaning 'play well'. It is our name and our ideal. The *LEGO Group* is a private limited company and was founded in 1932. It has changed a great deal over the past 80 years and is a global enterprise that is now the world's third-largest manufacturer of toys.

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The LEGO brick is our most important product. This is why we are proud to have been twice named 'Toy of the Century'. Our products have had extensive development over the years – but the foundation is still the traditional LEGO brick. The brick, in its present form, was launched in 1958. The colourful interlocking bricks are unique, and offer unlimited building possibilities for children.

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The LEGO brand is more than simply our familiar logo. It is the expectations that people have of the company towards its products and services, and the accountability that the *LEGO Group* feels towards the world around it. The brand acts as a guarantee of quality and originality – 'Only the best is good enough' has been our motto since 1932.

Extract D - Successful product launches and innovation secures strong result

A successful launch of LEGO Legends of Chima and strong performance from classic lines, such as LEGO City and LEGO Friends, contributed to a very satisfactory annual result for the *LEGO Group*.

Mads Nipper, Executive Vice President of the *LEGO Group*, said, 'LEGO Legends of Chima is a rich and engaging universe that children can explore in many ways. Not only by building and playing with LEGO sets, but also in the digital world using apps, exploring content on LEGO.com, via videos and online games. The theme is a great example of how we bridge physical and digital play for all age groups.'

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In 2014, the first ever LEGO movie was launched. It has earned revenues of more than \$424m worldwide. A sequel is scheduled to be released in 2017.

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The price elasticity of demand for LEGO City toy sets is estimated to be -2.0 .

(b) If *LEGO Group* reduces the price of its LEGO City toy sets by 25%, calculate the percentage change in sales. You are advised to show your working.

(4)