AQA - A Level Economics

Individuals, Firms, Markets & Market Failure

3.1 Price determination in a competitive market

Revision Notes

Contents

Hey there! 👋

We're **Tutor Packs**, and our mission is simple: making learning easy, stress-free, and actually enjoyable. ✨📚

We've got FREE revision notes and worked examples for loads of subjects, perfect for smashing those exams. 💪🤓

Want to see what we're all about and show support please visit our social media pages: https://www.tutorpacks.com/links

3.1.1 The determinants of the demand for goods & services

Demand

- **Demand refers to the quantity of a good or service purchased at a given price over a given time period.**

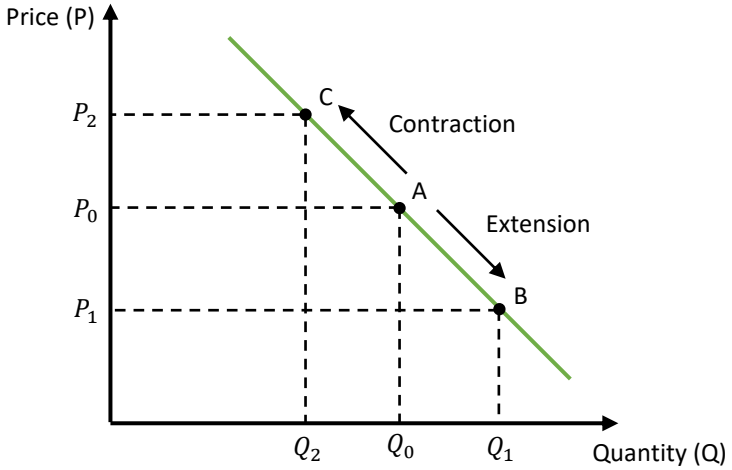
The demand curve is just a fancy way of showing the relationship between **price** and **quantity demanded (D)** on a graph.

- If economists plotted real data, it would curve slightly, but they often simplify it into a straight line for easier analysis.

Movements along a demand curve

The only time you'll see a movement along the demand curve is when the **price** of the good changes.

- **Price falls?** Demand goes up; this is called an **extension in demand**.
- **Price increases?** Demand goes down; this is called a **contraction in demand**.



3.1.1 The determinants of the demand for goods & services

Diagram Analysis: How Price Changes Affect Demand

Let's break it down:

- When the **price increases** from P_0 to P_2, we move **up** the demand curve from **Point A to C**, and the **quantity demanded** falls from Q_0 to Q_2 units. This is called a **contraction in demand**.
- When the **price decreases** from P_0 to P_1, we move **down** the demand curve from **Point A to B**, and the **quantity demanded** rises from Q_0 to Q_1 units. This is called an **extension in demand**.

The Law of Demand:

- Price and quantity demanded have an **inverse relationship**:
  - **When prices go up**, quantity demanded goes down.
  - **When prices go down**, quantity demanded goes up.
- This is why the demand curve slopes downward, it shows that as things get cheaper, people want more of them.

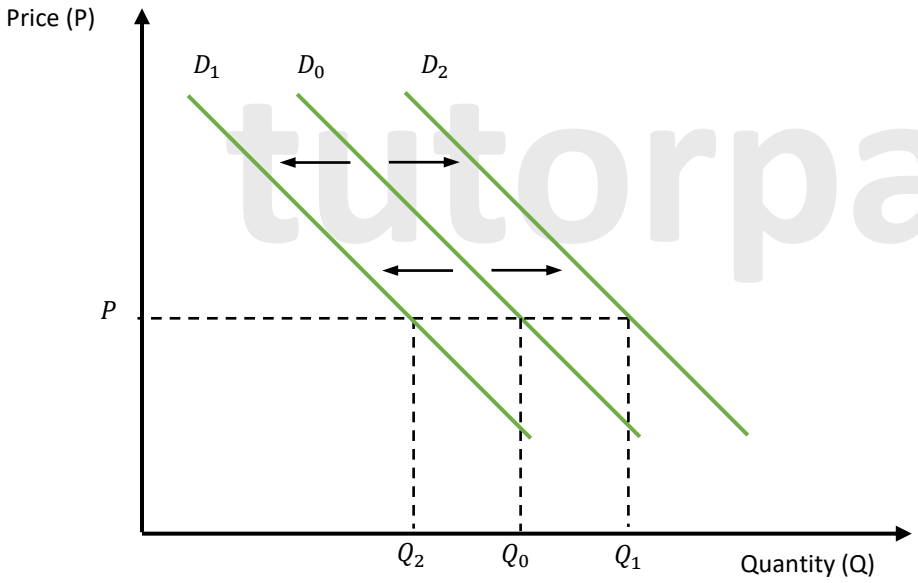
tutorpacks.com

3.1.1 The determinants of the demand for goods & services

Shifts in the demand curve

A number of factors can change the demand for a product or service, even if the price stays the same. These factors are called the **conditions of demand**.

When one of these conditions' changes, the entire demand curve shifts-it's not just a movement along the curve like with price changes.



3.1.1 The determinants of the demand for goods & services

Shifts in the demand curve

Imagine a fashion trend goes viral, and everyone wants puffer jackets. Even though the price stays the same, demand skyrockets as everyone jumps on the trend. In this case:

- The price stays the same at P.
- Demand rises and this causes a **shift in the demand curve** from $\boldsymbol{D_0}$ **to** $\boldsymbol{D_1}$, not just a movement along it.

3.1.1 The determinants of the demand for goods & services

The conditions of Demand

The conditions of demand are the factors that cause the **entire demand curve** to shift, either to the **right** (higher demand) or to the **left** (lower demand). Here's how to remember them easily: **TIER GAS.**

T - Taste and Trends

- When something is trendy or fashionable, demand rises ($D_0 \rightarrow D_2$). When trends fade, demand falls ($D_0 \rightarrow D_1$). Think fidget spinners, they were everywhere, and now they're not.

I – Income

- Higher incomes mean people can afford more, increasing demand for most goods ($D_0 \rightarrow D_2$).
- But there are some cases demand might drop. For example, demand for budget items might drop ($D_0 \rightarrow D_1$), as people trade up for more expensive and fancier products.

E – Expectations

What people think will happen matters.

- If prices are expected to rise, people buy now, increasing demand ($D_0 \rightarrow D_2$).
- If prices are expected to fall, people wait, lowering demand ($D_0 \rightarrow D_1$).

R – Related Goods

- Complements: Goods that go together, like ink cartridges and printers. If one gets cheaper, the other's demand increases ($D_0 \rightarrow D_2$).
- Substitutes: If the price of Coke goes up, people might switch to Pepsi, increasing Pepsi's demand.

3.1.1 The determinants of the demand for goods & services

The conditions of Demand

G - Government Policies

- New laws or rules can change demand. For example, when helmets became mandatory for motorcyclists, helmet demand shot up.

A - Advertising

- Good marketing works wonders. A great campaign can make more people buy a product, shifting demand right. Bad ads? Not so much.

S - Seasons

- Weather affects demand.
- Hot summers = more ice cream and sun hats.
- Cold winters = more hot chocolate and coats.

Population

- There is also population. More people = more demand. A growing population shifts demand to the right because more consumers = more sales.

tutorpacks.com

Price Elasticity of Demand (PED)

The **law of demand** is simple:

- When **price goes up**, the **quantity demanded goes down**.

But here's the catch: economists want to know **how much** the demand will drop when prices change.

This is where **price elasticity of demand (PED)** comes in.

- **Price elasticity of demand (PED) is the responsiveness in the demand for a good due to a change in its price. The formula to calculate it is:**

$$PED = \frac{\%\ change\ in\ quantity\ demanded}{\%\ change\ in\ price} = \frac{\%\Delta D}{\%\Delta P}$$

To calculate a % change, use:

$$\%\ change = \frac{new\ value - old\ value}{old\ value} \times 100$$

3.1.2 Price, income & cross elasticities of demand

Price Elasticity of Demand (PED)

Example 1

A bakery increases the price of cupcakes from **£2 to £3**, and as a result, daily sales drop from **200 to 120 cupcakes**. Calculate the **PED.**

Answer in the next page.

tutorpacks.com

Price Elasticity of Demand (PED)

Example 1

A bakery increases the price of cupcakes from **£2 to £3**, and as a result, daily sales drop from **200 to 120 cupcakes**. Calculate the **PED.**

Answer:

Step 1: Calculate the % change in Quantity Demanded (D)

$$\%\Delta D = \frac{120 - 200}{200} \times 100$$

$$\%\Delta D = \frac{-80}{200} \times 100 = -40\%$$

The quantity demanded dropped by 40%.

Step 2: Calculate the % change in Price (P)

$$\%\Delta P = \frac{3 - 2}{2} \times 100$$

$$\%\Delta P = \frac{1}{2} \times 100 = 50\%$$

The price increased by 50%.

Step 3: Insert the values into the PED formula

$$PED = \frac{\%\Delta D}{\%\Delta P}$$

$$\boldsymbol{PED = \frac{-40}{50} = -0.8}$$

3.1.2 Price, income & cross elasticities of demand

Price Elasticity of Demand (PED)

- In most cases, the answer is negative, showing that price and demand move in opposite directions with a negative gradient.
- However, ignore the minus sign to interpret PED values and explain elasticity.

Interpreting numerical value of PED

PED Value	Name	Explanation
PED = 0	**Perfectly Inelastic**	No matter how much the price changes, the quantity demanded stays the same. E.g., life-saving insulin. If the price doubles, people still need it – it's essential.
PED is less than 1	**Price Inelastic**	The percentage (%) change in demand is smaller than the % change in price. A 20% rise in the price of toothpaste might only cause a 5% drop in demand – people still but it because it's a necessity.
PED = 1	**Unitary Elasticity**	The % change in demand matches the % change in price. If movie ticket prices drop by 10%, demand rises by exactly 10%.
PED is greater than 1	**Price Elasticity**	Demand is super sensitive. A small price change causes a big shift in demand. E.g., if designer handbags go on sale for 10% off, demand might shoot up to 30%. People love a great deal.
PED is infinite	**Perfectly Elastic**	If the price rises even a tiny bit, demand drops to zero. A market with identical products, like bottled water at a festival. If one seller raises their price by a penny, everyone buys from the cheaper stall.

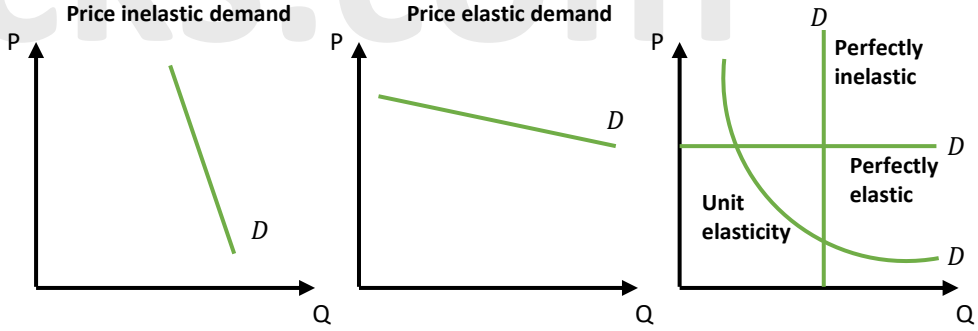
3.1.2 Price, income & cross elasticities of demand

Interpreting numerical value of PED

Summary:

- **PED = 0**: Price doesn't affect demand (life essentials).
- **PED < 1**: Price changes a little; demand changes less (necessities).
- **PED = 1**: Demand changes equally with price (balanced).
- **PED > 1**: Price changes a little; demand changes a lot (luxuries).
- **PED = ∞**: Price changes = demand vanishes (high competition).

The demand curves below show the difference elasticities:



tutorpacks.com

3.1.2 Price, income & cross elasticities of demand

The relationship between PED and total revenue

Total revenue is the money a business makes from selling its goods or services. It's calculated as:

$$\textbf{\textit{Total Revenue} = \textit{Price per Unit} \times \textit{Quantity Sold}}$$

For example, if a bakery sells 100 cupcakes at £2 each, total revenue is £200.

How Elasticity Affects Total Revenue

The relationship between price, demand, and revenue depends on **PED:**

If demand is elastic (PED > 1):

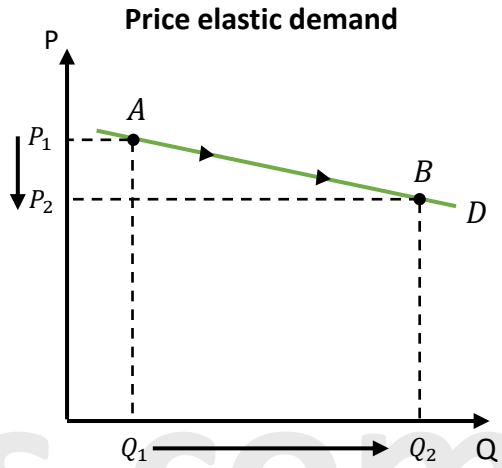
- Consumers are **sensitive to price changes**.
- Example: If a clothing store reduces prices by 10%, sales might jump by 30%. Revenue goes up because the percentage increase in quantity sold outweighs the price drop.
- But, raising prices will cause a large drop in sales, reducing revenue.

If demand is inelastic (PED < 1):

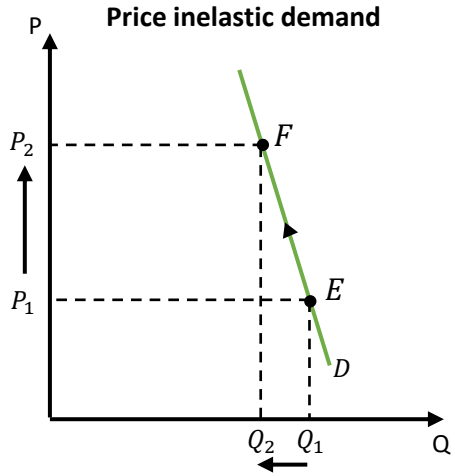
- Consumers are **less sensitive to price changes**.
- Example: A petrol station raises prices by 10%, and sales only drop by 5%. Revenue increases because the smaller drop in quantity sold is outweighed by the higher price.
- However, lowering prices won't boost sales enough to increase revenue.

3.1.2 Price, income & cross elasticities of demand

The relationship between PED and total revenue



A fall in price increases total revenue under elastic demand



A rise in price increases total revenue under inelastic demand

tutorpacks.com

The relationship between PED and total revenue

Elasticity isn't the same all along a straight-line demand curve. Here's how it works:

- At the **top left**, demand is **elastic** (buyers are super sensitive to price changes).
- At the **bottom right**, demand is **inelastic** (buyers are less sensitive to price changes).
- Right in the **middle**, demand has **unit elasticity -** this is the sweet spot where the percentage change in price equals the percentage change in quantity demanded.

Maximising Total Revenue

- Revenue is maximised when the price reaches **unit elasticity (PED = 1) -** this is the **midpoint of the demand curve**.
- Example: A coffee shop adjusts its latte price until the increase in sales perfectly balances the price drop, hitting the sweet spot where total revenue peaks.

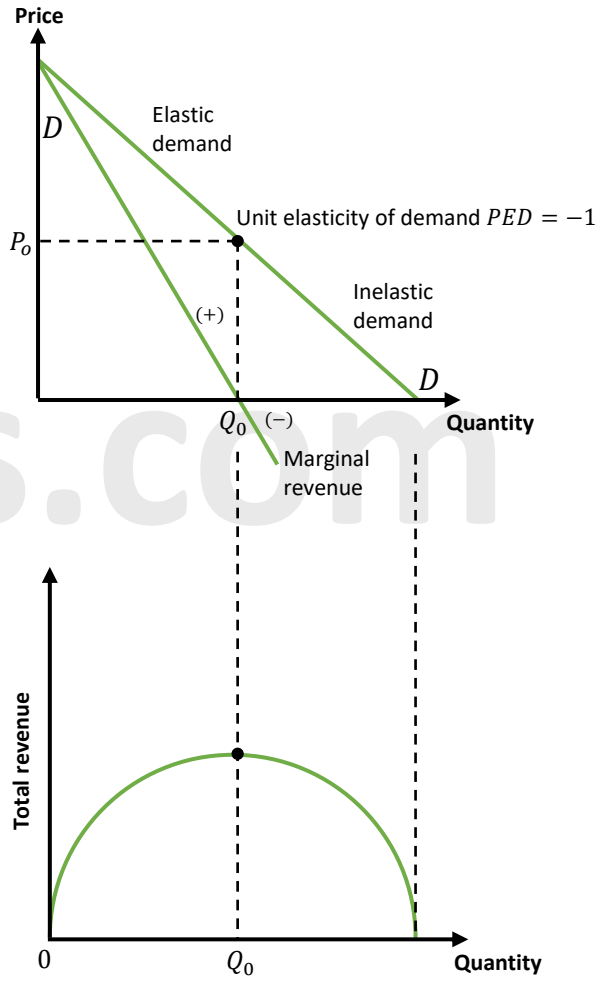
Relationship Between PED and Marginal Revenue (MR):

Marginal revenue (MR) is the **extra money** a business makes when it sells **one more unit** of a product. It tells the firm how much their revenue increases with each additional sale.

- **Positive MR:** Demand is price elastic (cutting prices increases revenue).
- **Zero MR:** Demand is unit elastic (revenue is maximized).
- **Negative MR:** Demand is inelastic (raising prices increases revenue).

3.1.2 Price, income & cross elasticities of demand

The relationship between PED and total revenue



tutorpacks.com

The relationship between PED and total revenue

Example 2

A coffee shop increases the price of a latte from **£3 to £5**. As a result, daily sales drop from **50 to 20 lattes**. Explain if it made the right decision.

Answer:
Step 1: Calculate revenue before the price change:

$$Sales\ revenue = Price\ of\ product \times Quantity\ sold$$
$$= £3 \times 50 = £150$$

Step 2: Calculate revenue after the price change:

$$sales\ revenue = £5 \times 20 = £100$$

Step 3: Analyse the results:

Price increase caused revenue to dropp from **£150 to £100**, a loss of **£50**. This means customers reacted strongly to the price increase, showing that the demand for lattes is **price elastic**.

3.1.2 Price, income & cross elasticities of demand

Factors influencing PED

Price elasticity of demand (PED) depends on several factors.

1. Substitutes

What it means: If there are plenty of alternatives, demand is **elastic** because people can switch to other options.

Example: If apples get expensive, people might buy bananas or oranges instead. But if it's insulin (no substitutes), demand is inelastic.

2. Luxury vs. Necessity

Luxury goods: Tend to have **elastic demand**. If the price of designer bags goes up, fewer people buy them because they aren't essential.

Necessities: Have **inelastic demand**. Even if bread prices rise, most people will still buy it because they need it to survive.

3. Cost relative to income

What it means: If a product costs a large chunk of your income, demand is **elastic** because you'll think twice before buying it.

Example: A car or a holiday - if prices rise, demand drops because they're big-ticket items.

Small-cost goods, like toothpaste or gum, are **inelastic** because the price change barely impacts your budget.

4. Addictive Goods

What it means: Products people are addicted to tend to have **inelastic demand** because they'll buy them no matter what.

Example: Coffee lovers won't stop buying coffee even if the price doubles. The same goes for cigarettes or alcohol.

tutorpacks.com

Factors influencing PED

5. Time Period

What it means: In the **short run**, demand is less elastic because people can't immediately change their habits. In the **long run**, demand becomes more elastic as people find alternatives.

Example: If electricity prices rise, households might continue using it in the short term. Over time, they might switch to solar panels or gas to save money.

6. Brand Image

What it means: Products with a strong brand image tend to have **price inelastic demand**. Loyal customers are willing to pay a higher price because they value the brand's reputation, quality, or status.

Example: People keep buying **Nike trainers** or **Costa coffee** even if prices go up. They love the brand too much to switch to alternatives.

3.1.2 Price, income & cross elasticities of demand

Income elasticity of demand (YED)

Income elasticity of demand (YED) helps us figure out how much demand for a product changes when people's incomes change. Economists love this because it shows how **sensitive demand** is to income shifts for different products.

The formula is simple:

$$YED = \frac{percentage\ change\ in\ quantity\ demand}{percentage\ change\ in\ real\ income} = \frac{\%\Delta\ in\ D}{\%\Delta\ in\ Y}$$

Therefore:

- **YED measures how much demand for a good or service changes when people's real income changes.**
- **Real income is the actual purchasing power of your money; the amount of goods and services you can buy with your nominal income.**

Example 3

A consumer's **income increases** from **£150 to £180 a week**. They used to enjoy **6 cups of fancy lattes** a week, but now they're treating themselves to **9 cups a week**. Let's calculate the **YED** for their latte habit.

tutorpacks.com

Income elasticity of demand (YED)

Example 3

A consumer's **income increases** from **£150 to £180 a week**. They used to enjoy **6 cups of fancy lattes** a week, but now they're treating themselves to **9 cups a week**. Let's calculate the **YED** for their latte habit.

Answer:

Step 1: Calculate the % change in Quantity Demanded (D)

$$\%\Delta D = \frac{New\ quantity - Old\ quantity}{Old\ quantity} \times 100$$

$$\%\Delta D = \frac{9-6}{6} \times 100 = +50\%$$

Step 2: Calculate the % change in Income (Y)

$$\%\Delta Y = \frac{180-150}{150} \times 100 = +20\%$$

Step 3: Insert the values into the YED formula

$$YED = \frac{\%\Delta D}{\%\Delta Y}$$

$$\boldsymbol{YED = \frac{50}{20} = +2.5}$$

3.1.2 Price, income & cross elasticities of demand

Interpreting YED values

YED between 0 and 1 (Normal Necessity)

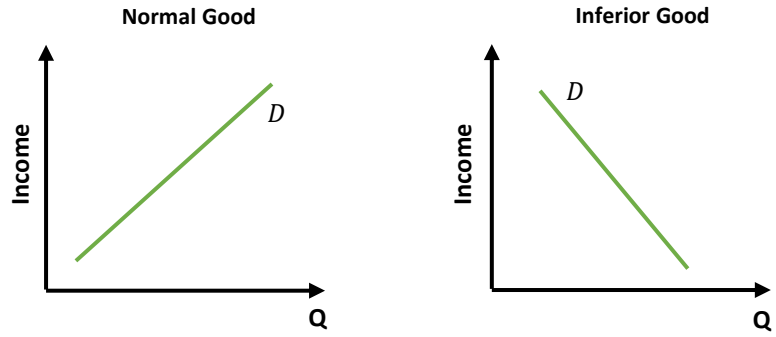
- Demand increases **less than income**.
- These are essential goods like bread or toothpaste. Even if your income doubles, you're not going to start buying *that* much more bread.

YED > 1 (Normal Luxury)

- Demand increases **more than income**.
- These are your fancy things like holidays or designer bags. When people earn more, they splurge on luxuries.

YED < 0 (Inferior Good)

- Demand **decreases** when income rises.
- Think of cheap instant noodles or second-hand clothes. As people earn more, they upgrade and buy better alternatives.



tutorpacks.com

Factors influencing YED

YED is shaped by all sorts of things happening in the economy:

- **Economic Growth:** Rising incomes mean more demand for **normal goods** and fewer inferior ones.
- **Recession:** When incomes drop, people buy more **inferior goods** and fewer luxuries.
- **Other Factors:** Things like minimum wage hikes, taxes, or global trade can influence incomes and YED.

YED Quick Tips:

- **Positive YED** = Normal good (necessity or luxury).
- **Negative YED** = Inferior good.
- The bigger the number, the stronger the link between income changes and demand.
    - Example: If $YED = +2.5$, demand is very responsive to income changes (hello, luxury goods!).

Why Does It Matter?

- YED helps businesses and policymakers figure out what products people will buy more (or less) of as incomes rise or fall. Whether it's designer bags or instant noodles, income plays a big role in shaping demand! 💼🚽✨

3.1.2 Price, income & cross elasticities of demand

Cross elasticity of demand (XED)

- XED measures how **demand for one good (A)** changes when the **price of another good (B)** changes.
- It's all about the relationship between **complementary goods** (e.g., coffee and milk) and **substitute goods** (e.g., Coke and Pepsi).

Different goods have different levels of responsiveness to price changes:

- **Complementary goods**: A price increase in one good (e.g., coffee) might cause demand for its complement (e.g., milk) to drop.
- **Substitutes**: A price increase in one good (e.g., Coke) might push people to buy its competitor (e.g., Pepsi).

The formula:

$$XED = \frac{percentage\ change\ in\ demand\ for\ good\ B}{percentage\ change\ in\ price\ of\ good\ A} = \frac{\%\Delta\ in\ D_B}{\%\Delta\ in\ P_A}$$

Therefore:

- **XED measures how the demand for good B reacts to a change in the price of good A.**

Let's say:

- If the price of hot dogs goes up, fewer people buy buns.
- XED will show how much the demand for buns has dropped due to the price hike in hot dogs.

tutorpacks.com

Cross elasticity of demand (XED)

Example 4

A local cinema decides to lower the price of its movie tickets from £12 to £8. As a result, the weekly sales of popcorn in the cinema jump from 50 to 90 bags. Calculate the XED and explain the relationship between the two products.

Answer:

Step 1: Calculate the % change in Quantity Demanded of popcorn (Good B)

$$\%\Delta D = \frac{New\ quantity - Old\ quantity}{Old\ quantity} \times 100$$

$$\%\Delta D_B = \frac{90 - 50}{50} \times 100 = +80\%$$

Step 2: Calculate the % change in price of movie tickets (Good A)

$$\%\Delta P_A = \frac{8 - 12}{12} \times 100 = -33.33\%$$

Step 3: Insert the values into the XED formula

$$XED = \frac{\%\Delta\ in\ D_B}{\%\Delta\ in\ P_A} = \frac{+80\%}{-33.33\%} = -2.4$$

Step 4: Explain the relationship

The **negative XED value** shows that movie tickets and popcorn are **complementary goods** (you usually enjoy them together). The high magnitude of -2.4 (ignoring the minus sign) indicates that they are **strong complements**, lowering ticket prices significantly increases popcorn sales.

3.1.2 Price, income & cross elasticities of demand

Interpreting XED values

XED helps us figure out the relationship between two products. Here's how to interpret the values:

XED < 0: Complementary Goods

- A negative XED value shows that two goods are **complements.** If the price of one goes up, the demand for the other falls.
- Coffee and sugar. If coffee prices soar, people might buy less sugar because they're drinking less coffee.

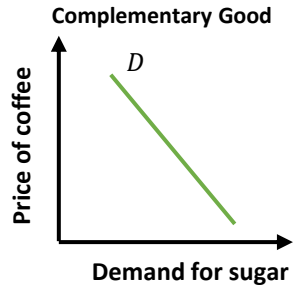
XED > 0: Substitutes

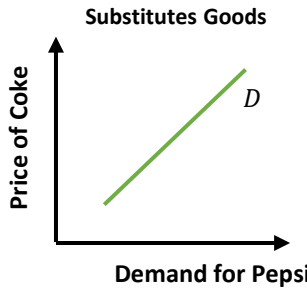
- A positive XED value means the goods are **substitutes.** If the price of one rises, demand for the other increases.
- Coke and Pepsi. If Coke prices jump, people will grab Pepsi instead.

XED = 0: Unrelated Goods

- A value of zero means the goods have **no connection.** A change in the price of one won't affect demand for the other.
- Bananas and car tires. If tire prices drop, it won't make anyone rush to buy bananas.

Pro Tip: The closer XED is to zero, the weaker the relationship.





tutorpacks.com

Significance of elasticities of demand to firms and government

Understanding elasticity is essential for businesses and governments to make smarter decisions.

- For businesses, **Price Elasticity of Demand (PED)** helps maximise revenue. If demand is **inelastic** (not sensitive to price changes), firms can raise prices without losing many customers. On the other hand, if demand is **elastic** (very price-sensitive), lowering prices can boost sales and revenue. Similarly, **Cross Price Elasticity of Demand (XED)** lets firms adjust pricing strategies for substitutes (e.g., Coke vs. Pepsi) or complements (e.g., coffee and sugar) and anticipate the impact of competitors' price changes.
- Governments use PED to design effective taxes and subsidies. Taxing inelastic goods, like petrol, ensures steady tax revenue because people keep buying despite price increases. Subsidising elastic goods, such as public transport, creates a significant rise in demand, making subsidies impactful and worthwhile.
- Firms also rely on **Income Elasticity of Demand (YED)** to plan during economic shifts. In recessions, they focus on **inferior goods** (e.g., budget items) as demand for these increases when incomes fall. During economic growth, they pivot to **luxury goods**, which see higher demand as incomes rise.

In short, elasticity helps firms boost profits, governments optimise tax policies, and both adapt to changes in consumer behaviour.

3.1.2 Price, income & cross elasticities of demand

Significance of elasticities of demand to firms and government

Continue to the next page…

tutorpacks.com

3.1.3 The determinants of the supply of goods and services

- **Supply refers to how much of a product or service producers are ready and willing to offer at a certain price during a given time.**

The Supply Curve:

The supply curve shows the relationship between price and quantity supplied. It's usually sloping **upward**, meaning as prices go up, producers are happy to supply more. Why?

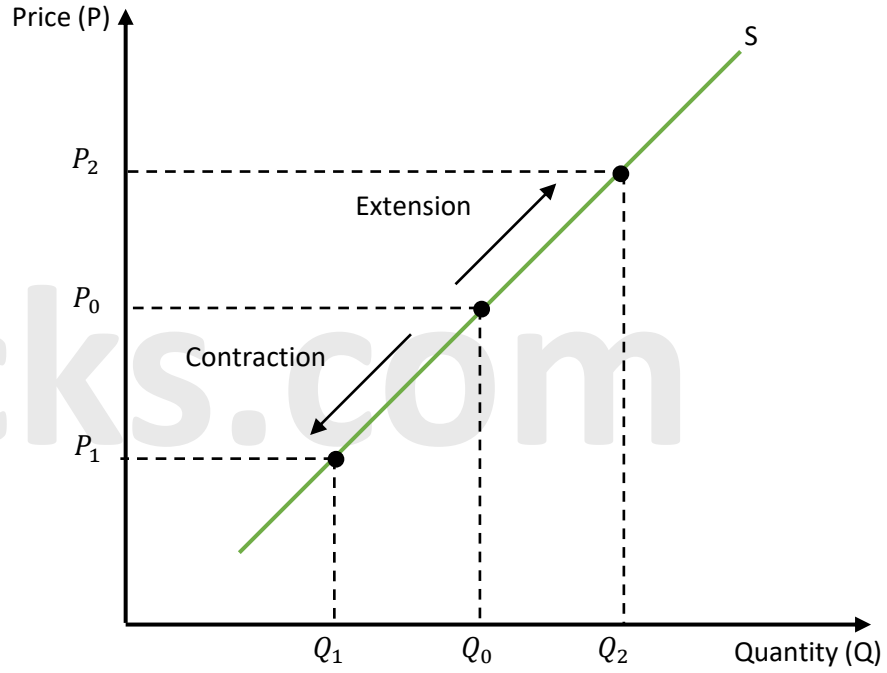
1) When **prices increase**, firms are motivated to supply more to **earn higher profits**.
2) However, as **output grows in the short run, production costs also rise**. To offset these costs, firms charge higher prices to consumers, which can also attract smaller or less-established businesses (aka marginal firms) into the market.

Movement along a supply curve

There is a movement along a supply curve only when the price of a good changes. If the price goes up, producers supply more, this is called an **extension** in supply. If the price drops, producers supply less, this is known as a **contraction** in supply.

3.1.3 The determinants of the supply of goods and services

Movement along a supply curve

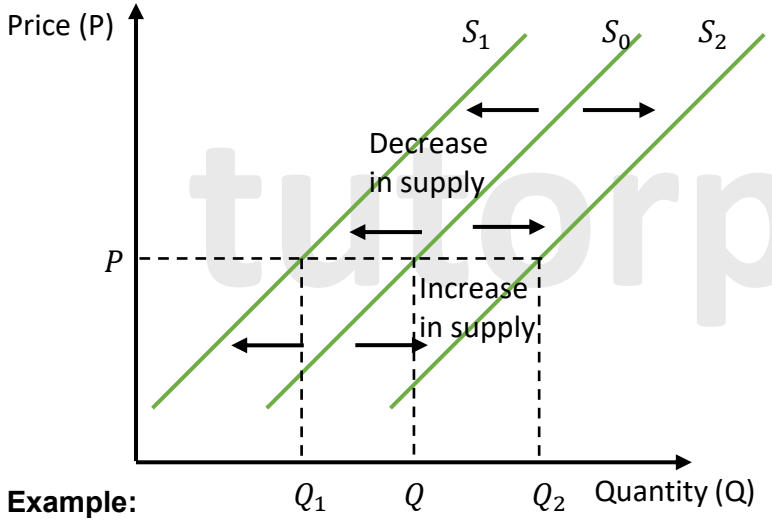


tutorpacks.com

3.1.3 The determinants of the supply of goods and services

The causes of shifts in the supply curve

- There are certain factors that can **change supply** for a good or service, no matter what the price is. These are called the **conditions of supply**.
- When one of these factors changes, it causes the **entire supply curve to shift** – either to the **right** (increase in supply) or to the **left** (decrease in supply). This is different from just moving along the curve when the price changes.



Example:

Let's say the cost of a key resource (like steel for making cars) goes up. Since production costs are higher, the car manufacturer can't afford to make as many cars. This causes a **decrease in supply**.

- On the graph, the supply curve shifts **left** from S to S_1.
- The price (P) stays the same, but the supply drops from Q units to Q_1 units.

3.1.3 The determinants of the supply of goods and services

The causes of shifts in the supply curve

Here's a quick breakdown of the factors that **shift the supply curve,** not just move along it.

1. Costs of Production (COP)

- **What it means**: If the cost of raw materials or production changes, firms adjust their supply.
- **If COP Increases**: Supply **shifts left** ($S \rightarrow S_1$) – Firms produce less because costs are high.
- **If COP Decreases**: Supply **shifts right** ($S \rightarrow S_2$) – Lower costs encourage firms to produce more.

2. New Technology

- **What it means**: Better technology makes production faster and cheaper.
- **If Technology Improves**: Supply **shifts right** ($S \rightarrow S_2$) – Firms produce more efficiently.
- **If Technology Declines**: Supply **shifts left** ($S \rightarrow S_1$) – Outdated tech slows down production.

3. Change in the Number of Firms

- **What it means**: More firms in a market = more supply. Fewer firms = less supply.
- **If Firms Increase**: Supply **shifts right** ($S \rightarrow S_2$) – More firms mean more competition and output.
- **If Firms Decrease**: Supply **shifts left** ($S \rightarrow S_1$) – Fewer firms mean less supply.

tutorpacks.com

3.1.3 The determinants of the supply of goods and services

The causes of shifts in the supply curve

4. Indirect Taxes

- **What it means**: Taxes on goods (like VAT or specific taxes) increase costs for firms.
- **If Taxes Increase**: Supply **shifts left** ($S \rightarrow S_1$) – Higher costs = less supply.
- **If Taxes Decrease**: Supply **shifts right** ($S \rightarrow S_2$) – Lower costs = more supply.

5. Subsidies

- **What it means**: Government subsidies help reduce production costs for firms.
- **If Subsidies Increase**: Supply **shifts right** ($S \rightarrow S_2$) – Firms can afford to produce more.
- **If Subsidies Decrease**: Supply **shifts left** ($S \rightarrow S_1$) – Less financial help = less supply.

6. Weather

- **What it means**: For agricultural goods, supply often depends on weather conditions.
- **If the weather is good**: More crops are produced, and the supply curve shifts right ($S \rightarrow S_2$).
- **If the weather is bad**: Crop production falls, and the supply curve shifts left ($S \rightarrow S_1$).

3.1.3 The determinants of the supply of goods and services

Continue to the next page…

tutorpacks.com

3.1.4 Price elasticity of supply

Price elasticity of supply (PES)

The **law of supply** says that when prices go up, producers will supply more, and when prices fall, they supply less (*ceteris paribus* –"all else being equal"). But here's the kicker: economists don't just stop at that. They want to know **how much supply changes** when the price changes.

This is where **price elasticity of supply (PES)** comes in.

- **Price elasticity of supply (PES) is the responsiveness in the supply for a good due to a change in its price. The formula to calculate it is:**

$$PED = \frac{\%\ change\ in\ supply}{\%\ change\ in\ price} = \frac{\%\Delta S}{\%\Delta P}$$

To calculate a % change, use:

$$\%\ change = \frac{new\ value - old\ value}{old\ value} \times 100$$

3.1.4 Price elasticity of supply

Price elasticity of supply (PES)

Example 1

The price of *fresh strawberries* increases from £2.00 to £3.50 due to rising demand during summer. *Eco Farms*, a local strawberry producer, tries to increase their supply to meet the demand but only manages to grow a few more batches. Sales rise from 500 baskets to 525 baskets a week. Let's calculate the PES and explain what it tells us.

3.1.4 Price elasticity of supply

Price elasticity of supply (PES)

Example 1

The price of *fresh strawberries* increases from £2.00 to £3.50 due to rising demand during summer. *Eco Farms*, a local strawberry producer, tries to increase their supply to meet the demand but only manages to grow a few more batches. Sales rise from 500 baskets to 525 baskets a week. Let's calculate the PES and explain what it tells us.

Answer:

Step 1: Calculate the % change in Quantity Supplied (S)

$$\%\Delta S = \frac{New\ supply - Old\ supply}{Old\ supply} \times 100$$

$$\%\Delta S = \frac{525 - 500}{500} \times 100 = +5\%$$

Step 2: Calculate the % change in Price (P)

$$\%\Delta P = \frac{3.50 - 2.00}{2.00} \times 100 = +75\%$$

Step 3: Insert the values into the PES formula

$$PES = \frac{\%\Delta S}{\%\Delta P}$$

$$\boldsymbol{PES = \frac{5\%}{75\%} = 0.07}$$

Step 4: Explanation

The PES value of **0.07** tells us that strawberries are **highly price inelastic in supply**. Even though the price jumped significantly, the quantity supplied barely increased. Why? Fresh strawberries take time to grow, and farmers can't instantly produce more, even if prices rise.

3.1.4 Price elasticity of supply

Interpreting PES values

$PES = 0$: Perfectly Price Inelastic

- **What it means:** Supply doesn't budge no matter how much the price changes.
- **Example:** A theatre with fixed seating – even if ticket prices skyrocket, there are still only a limited number of seats.

$PES < 1$: Price Inelastic

- **What it means:** Supply changes, but only a little compared to the price change.
- **Example:** Agricultural goods like wheat – farmers can't instantly grow more crops if prices rise.

$PES = 1$: Unit Price Elastic

- **What it means:** The percentage change in supply is exactly the same as the percentage change in price.
- **Example:** A factory producing custom-made furniture – if prices rise by 10%, supply also increases by exactly 10% as producers can match demand proportionally.

$PES > 1$: Price Elastic

- **What it means:** Supply responds **a lot** to even a small price change.
- **Example:** T-shirts – factories can quickly ramp up production if prices rise.

$PES = \infty$: Perfectly Price Elastic

- **What it means:** At a specific price, supply is unlimited, but if the price changes even slightly, supply drops to zero.
- **Example:** A theoretical scenario in international trade – if a country can sell as much as it wants at a fixed price but stops supplying if the price dips.

tutorpacks.com

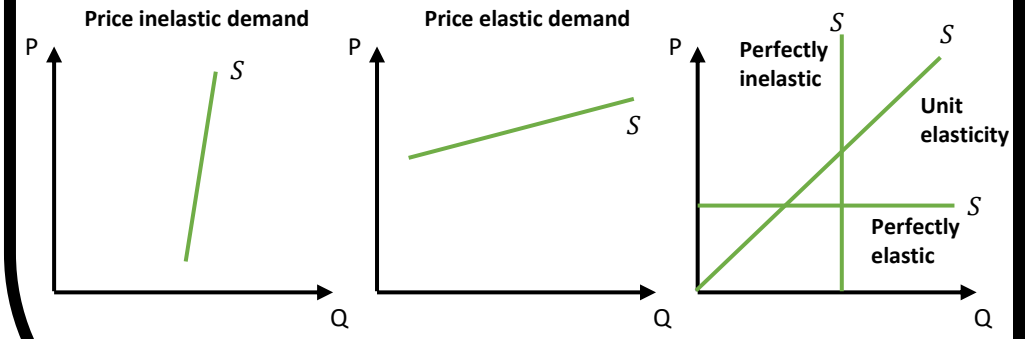
3.1.4 Price elasticity of supply

Interpreting PES values

Summary:

- **PES = 0: Perfectly Price Inelastic -** Supply doesn't change at all (e.g., theatre seats).
- **PES < 1: Price Inelastic** - Supply changes a little (e.g., crops like wheat).
- **PES = 1: Unit Price Elastic** - Supply changes **exactly** in proportion to price changes (e.g., custom furniture).
- **PES > 1: Price Elastic** - Supply changes a lot compared to price changes (e.g., t-shirts).
- **PES = ∞: Perfectly Price Elastic** - Supply is unlimited at a fixed price but drops to zero if the price changes (e.g., a trade scenario).

The demand curves below show the difference elasticities:



3.1.4 Price elasticity of supply

Factors that influence PES

1) Availability of Raw Materials:

If raw materials are scarce, supply will be **price inelastic** (low PES). If they're easy to find, supply becomes **price elastic** (higher PES).

- **Example:** If there's a sudden demand for chocolate, producers with easy access to cocoa beans can ramp up supply quickly. If cocoa beans are hard to get, supply stays low.

2) Storage:

If products can be stored easily, producers can increase supply quickly when prices rise. This makes PES **higher** (elastic).

- **Example:** Bottled water can be stored and released during a heatwave; fresh milk can't.
- If storage is difficult, PES will be **low** (inelastic).

3) Level of Spare Capacity:

If factories have spare capacity (extra production ability), producers can ramp up supply quickly, making PES **elastic**.

- **Example:** A bakery with spare ovens can bake more bread.
- If there's no spare capacity, supply will be **inelastic**.

4) Mobility of Resources:

If producers can quickly switch resources (like workers or machines) between products, supply will be more **price elastic**.

- **Example:** A clothing factory producing t-shirts can quickly switch to making hoodies if prices for hoodies rise.

Factors that influence PES

5. Ease of Entry to an Industry:

If it's easy for new firms to enter the industry (low barriers like costs, regulations, or licenses), supply will be more **price elastic**.

- **Example:** Starting a homemade candle business requires little money and few resources, so new sellers can easily enter if candle prices rise.
- If entry is difficult (e.g., airplane manufacturing), supply will be **inelastic**.

6. Time Period:

- **Short Run:** Producers may struggle to respond quickly as it takes time to increase supply.
    - **Example:** Farmers can't grow extra strawberries overnight to meet sudden demand.
- **Long Run:** Over time, producers can adjust all their resources and increase supply.
    - **Example:** If electric cars become popular, car manufacturers can invest in new production plants to make more over time.

3.1.4 Price elasticity of supply

Continue to the next page…

tutorpacks.com

Equilibrium

In a **free market**, prices are set by the **interaction of demand and supply**. Here's how it works:

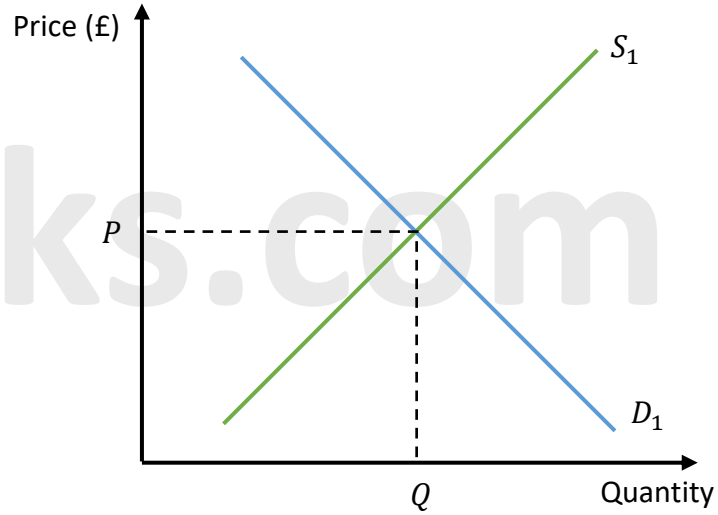
- A **market** is any place (physical like a shop, or virtual like Amazon) where **buyers** and **sellers** come together to exchange goods and services.
- Buyers and sellers agree on a **price**:
  - Buyers show their agreement by **purchasing** the product.
  - If buyers don't like the price, they simply **don't buy it** – this is called **consumer sovereignty**, where buyers have the power to decide what gets produced by spending their money.
- Over time, **sellers adjust prices** to find the perfect balance:
  - The price where **supply** meets **demand** is called the **equilibrium price**.
  - At this price, sellers sell enough to feel satisfied with the **quantity** of sales, and buyers are happy because they feel the price matches the **value** or **utility** they get from the product.

3.1.5 The determination of equilibrium market prices

Equilibrium

Equilibrium is when everything in the market balances out perfectly: **demand = supply**. At this sweet spot, the price is called the **market clearing price** because sellers are able to sell all their stock at a rate that works for them and buyers. Therefore:

- **Equilibrium means there is a balance in the market, with no tendency for price or output to change.**

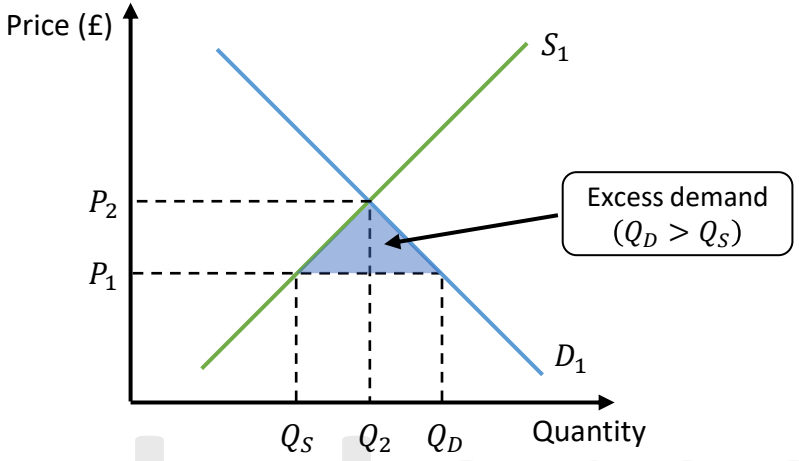


If the price goes **above P**, there's **excess supply** (too much stock and not enough buyers).If the price goes **below P**, there's **excess demand** (buyers want more than sellers can offer). This is called **disequilibrium.**

Markets naturally adjust over time to move back to equilibrium, where everything settles perfectly.

tutorpacks.com

Excess Demand

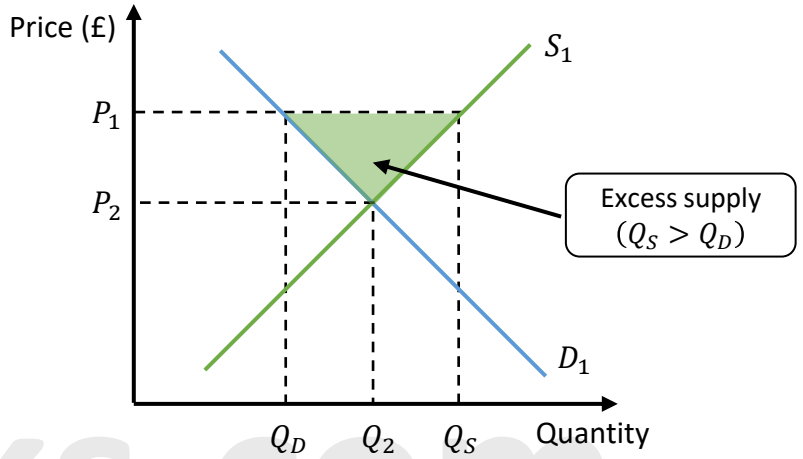


When the price is set too low, below the equilibrium point, we get something called **excess demand**. Here's what happens:

- At price P_1, suppliers are only willing to provide Q_s, but customers are demanding way more (Q_D). This creates a **shortage**, shown by the blue triangle in the diagram.
- In response to the shortage, businesses realise they can charge more since people are eager to buy. So, they raise the price to P_2.
- As prices go up, two things happen: more suppliers jump in to provide goods (an **extension in supply**) and some buyers start dropping out because it's now too pricey (a **contraction in demand**).
- Eventually, supply matches demand at Q_2, and the market finds its balance again - **equilibrium restored.**

3.1.5 The determination of equilibrium market prices

Excess Supply



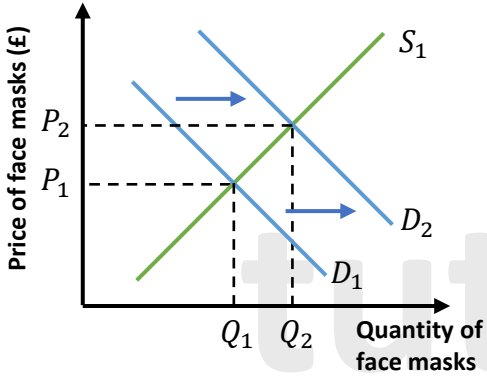
When the price is set too high, above the equilibrium point, we get **excess supply**. Here's what's happening:

- At price P_1, suppliers are ready to provide Q_S, but consumers only want Q_D. This leads to an oversupply, shown by the green triangle in the diagram.
- What happens when stores have too much unsold stock? **Sales!** To clear the excess goods, businesses lower their prices.
- As prices fall, two things occur: more customers jump in to buy (an **extension in demand**) and suppliers produce less because it's no longer as profitable (a **contraction in supply**).
- Eventually, the market finds its sweet spot again at P_2 and Q_2 **and equilibrium is restored.**

tutorpacks.com

Using supply and demand diagrams to explain real-world price and quantity changes

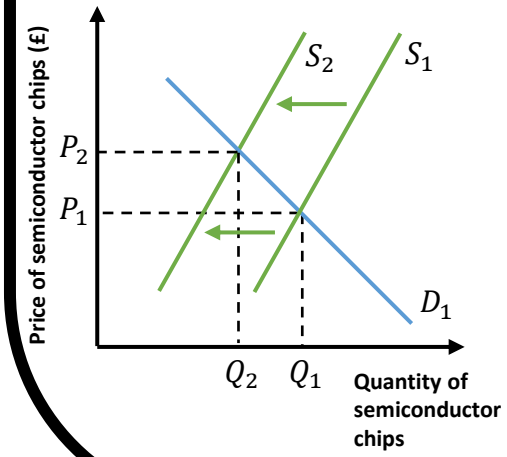
Markets are constantly shifting due to changes in demand and supply. These changes can throw the market out of balance, creating *disequilibrium* until things settle again. Let's explore these concepts with real-life examples:



Demand increases (Higher Prices)

Example: Face masks during COVID-19

Demand surged, shifting from D_1 to D_2, creating a shortage at P_1. Prices rose to P_2, which reduced demand slightly and attracted more suppliers, forming a new higher equilibrium, at a higher price and quantity. More masks became available as supply expanded.



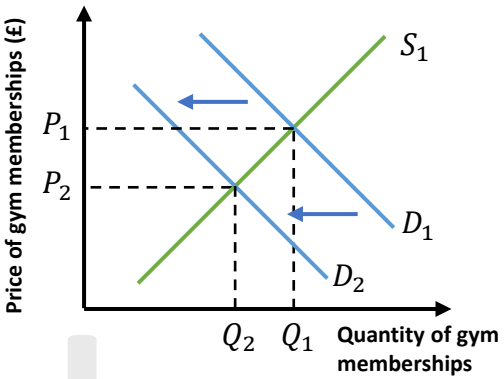
Supply decreases (Higher Prices)

Example: The semiconductor chip shortage disrupted supply for tech products and cars.

Supply shrank from S_1 to S_2, causing shortages at P_1. Prices increased to P_2, reducing demand and motivating producers, creating a new equilibrium with higher prices but fewer chips available.

3.1.5 The determination of equilibrium market prices

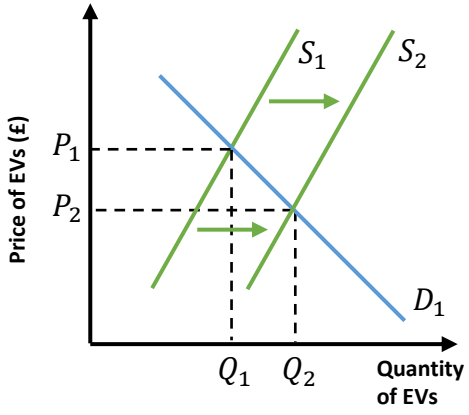
Using supply and demand diagrams to explain real-world price and quantity changes



Demand decreases (Lower Prices)

Example: Gyms see a New Year demand surge, but it drops by March as enthusiasm fades.

Demand fell, shifting from D_1 to D_2, creating an excess capacity at P_1. Prices drop to P_2 as companies offer special deals and lower membership prices. This forms a lower equilibrium price and fewer memberships overall.



Supply increases (Lower Prices)

Example: As electric vehicles (EV) technology improved and more car manufacturers entered the market, the supply of EVs grew rapidly.

Supply expanded, shifting from S_1 to S_2, creating a surplus at P_1. Sellers reduced EV prices to P_2, making them more affordable to a wider audience. This forms a lower equilibrium price with higher quantities of EVs sold as more consumers switched to EVs.

tutorpacks.com

3.1.6 The interrelationship between markets

What happens in one market can totally affect another. Kinda like a domino effect. This is where different types of **demand** and **supply** come into play, showing how markets connect.

Types of demand

🧱 **Derived Demand**

This is when one product is only in demand *because* another product is.
👉 **Example:** If people want more smoothies, cafes will need more fruit. So, the demand for fruit is **derived** from the demand for smoothies!

🥛 **Composite Demand**

When a product is used in more than one way, it creates **composite demand**.
👉 **Example:** If cocoa is used to make both chocolate and hot chocolate, a rise in chocolate demand might leave less cocoa available for hot chocolate. 🍫☕

📷 **Joint Demand**

This happens when two products are used together; you can't really have one without the other.
👉 **Example:** If lots of people buy game consoles, demand for video game discs will go up too 🎮💿

🔁 **Substitute Goods**

Substitutes are goods that can replace each other. If one becomes more popular, the other may suffer.
👉 **Example:** If everyone switches to Spotify Premium, fewer people buy CDs, so CD sales (and prices) drop. 🎶📉

3.1.6 The interrelationship between markets

Types of supply

🐄 **Joint Supply**

This is when making one product naturally creates another.
👉 **Example:** When cows are raised for leather (for shoes or bags), they also provide beef. So, more leather = more beef = **joint supply** 🍔👞

🔍 **In Summary:**

- **Markets are connected.** A shift in one can ripple into others.
- **Derived demand** = one good depends on another.
- **Composite demand** = one good used in multiple ways.
- **Joint demand** = two goods used together.
- **Substitute goods** = one replaces the other.
- **Joint supply** = two products made from one process.

tutorpacks.com

Please see the '3.2 Price determination in a competitive market Worked Examples' pack for exam style questions.

For more revision notes, tutorials, worked examples and more help visit www.tutorpacks.com

tutorpacks.com