Market Equilibrium & Disequilibrium

AQA 3.1.2.5
Determination of Equilibrium Market Prices

- Equilibrium means a **state of equality or balance** between market demand and supply.

- Prices where demand and supply are out of balance are called points of **disequilibrium**.

- Most demand & supply exam questions present the student with an event(s) that causes either the demand or supply curve (or both) to shift. The student is then expected to **find and analyse the new equilibrium**.
A football club has a fixed stadium capacity of 8,000 seats and has estimated the level of demand at different ticket prices as follows:

<table>
<thead>
<tr>
<th>Price</th>
<th>Quantity demanded</th>
<th>Quantity supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>£20</td>
<td>6,000</td>
<td>8,000</td>
</tr>
<tr>
<td>£18</td>
<td>7,000</td>
<td>8,000</td>
</tr>
<tr>
<td>£16</td>
<td>8,000</td>
<td>8,000</td>
</tr>
<tr>
<td>£14</td>
<td>9,000</td>
<td>8,000</td>
</tr>
<tr>
<td>£12</td>
<td>10,000</td>
<td>8,000</td>
</tr>
</tbody>
</table>

The equilibrium price in this situation is £16 where quantity demanded and supplied = 8,000 tickets. Supply & demand in balance.
Equilibrium is a state of **balance** between market demand and supply – there is **no excess demand or supply**

Pe is also known as the “market clearing price”
Disequilibrium – Excess Supply

If the current market price was P2, there would be an excess supply – of Q2 – Q3, this will put downward pressure on price.
If the current market price was $P_1$, there would be an excess demand – of $Q_1 - Q_4$, this will put upward pressure on price.
The demand for and supply of fresh fish in a local market is shown in the table below. The original equilibrium price is £6 per kg.

<table>
<thead>
<tr>
<th>Price per kg</th>
<th>Quantity demanded (1)</th>
<th>Quantity supplied</th>
<th>Quantity demanded (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>£10</td>
<td>100</td>
<td>380</td>
<td>240</td>
</tr>
<tr>
<td>£9</td>
<td>130</td>
<td>340</td>
<td>270</td>
</tr>
<tr>
<td>£8</td>
<td>160</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>£7</td>
<td>190</td>
<td>260</td>
<td>330</td>
</tr>
<tr>
<td><strong>£6</strong></td>
<td><strong>220</strong></td>
<td><strong>220</strong></td>
<td><strong>360</strong></td>
</tr>
<tr>
<td>£5</td>
<td>250</td>
<td>180</td>
<td>390</td>
</tr>
</tbody>
</table>

If market demand rises by 80kg at each and every price, then the new equilibrium price will be £8 with 300kg bought and sold.
An outward shift of market demand (ceteris paribus) leads to a rise in equilibrium price and an expansion of market supply.

If price did not rise from $P_1$ after a shift in demand from $D_1$ to $D$, there would be excess demand.
The demand for and supply of cocoa beans in a local market is shown in the table below. The original equilibrium price is $30.

<table>
<thead>
<tr>
<th>Price per kg</th>
<th>Quantity demanded (1)</th>
<th>Quantity supplied</th>
<th>Quantity Supplied (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$40</td>
<td>2,000</td>
<td>3,800</td>
<td>4,700</td>
</tr>
<tr>
<td>$35</td>
<td>2,500</td>
<td>3,400</td>
<td>4,300</td>
</tr>
<tr>
<td>$30</td>
<td>3,000</td>
<td>3,000</td>
<td>3,900</td>
</tr>
<tr>
<td>$25</td>
<td>3,500</td>
<td>2,600</td>
<td>3,500</td>
</tr>
<tr>
<td>$20</td>
<td>4,000</td>
<td>2,200</td>
<td>3,100</td>
</tr>
<tr>
<td>$15</td>
<td>4,500</td>
<td>1,800</td>
<td>2,700</td>
</tr>
</tbody>
</table>

If market supply increases by 900 tonnes at each price, then the new equilibrium price will be £25 with 3,500 tonnes bought & sold.
An outward shift of market supply (ceteris paribus) will lead to a fall in equilibrium price and an expansion of market demand.
An inward shift of market demand (ceteris paribus) leads to a fall in equilibrium price and a contraction of market supply.
An inward shift of market supply (ceteris paribus) leads to a rise in equilibrium price and a contraction of market demand.
An increase in demand in the immediate period leads to the price rising to $P_2$, before an expansion of supply takes effect.
In this example the size of the outward shift of market supply exceeds the increase in market demand. Both factors cause quantity bought and sold to rise; but the market price will fall.
Explaining Possible Changes in Beef Prices

### Average retail price of beef in the UK

<table>
<thead>
<tr>
<th>Year</th>
<th>£ per kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>6.16</td>
</tr>
<tr>
<td>2011</td>
<td>6.42</td>
</tr>
<tr>
<td>2012</td>
<td>6.99</td>
</tr>
<tr>
<td>2013</td>
<td>7.47</td>
</tr>
</tbody>
</table>

What demand & supply factors might explain the rising price of beef?

<table>
<thead>
<tr>
<th>Demand Factors</th>
<th>Supply Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rise in price of beef substitutes</td>
<td>Increase in price of animal foodstuffs</td>
</tr>
<tr>
<td>Rising real incomes if YED &gt; 0</td>
<td>Higher rents paid by beef farmers</td>
</tr>
<tr>
<td>Change in tastes and preferences</td>
<td>Rise in wages of farm labourers</td>
</tr>
</tbody>
</table>

Diagram: A graph showing the change in price of beef from P1 to P2 with a shift from S1 to S2. The graph illustrates the effect on price and quantity of beef sold.
Real World: Explaining Changes in UK Footwear Prices

Consumer price index for footwear products in UK

- Global competition from lower cost countries
- Falling input costs have increased market supply
- Intense retail competition on the high street and online
- Strong exchange rate – which makes imports of shoes cheaper
Likely Effects of Changes in UK Wheat Prices

Production
- Lower prices may cause a contraction of wheat supply

Revenues and Profits
- Lower revenues might damage incomes for farmers

Manufacturing costs
- Bread manufacturers will benefit from lower wheat prices – their input costs have fallen
An outward shift of demand will lead to a higher price, an expansion of production and a rise in total producer revenue.

Equilibrium Prices and Producer Revenue

Price of Rubber

0

P1

P2

Q1

Q2

Quantity supplied

Total revenue = market price x quantity sold

Total revenue at the higher market price
Summary of Changes in Equilibrium Prices

Equilibrium prices change when conditions of demand/supply alter

<table>
<thead>
<tr>
<th>Shift</th>
<th>Equilibrium Price</th>
<th>Equilibrium Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand increases</td>
<td>Higher</td>
<td>Higher</td>
</tr>
<tr>
<td>Demand decreases</td>
<td>Lower</td>
<td>Lower</td>
</tr>
<tr>
<td>Supply increases</td>
<td>Lower</td>
<td>Higher</td>
</tr>
<tr>
<td>Supply decreases</td>
<td>Higher</td>
<td>Lower</td>
</tr>
</tbody>
</table>

In analysing price changes, identify relevant supply/demand factors.
The possible outcomes for price and quantity are less certain when there is more than one change in demand and supply conditions.

<table>
<thead>
<tr>
<th>Demand</th>
<th>Supply</th>
<th>Equilibrium Price</th>
<th>Equilibrium Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>+</td>
<td>?</td>
<td>+</td>
</tr>
<tr>
<td>+</td>
<td>0</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>+</td>
<td>-</td>
<td>+</td>
<td>?</td>
</tr>
<tr>
<td>0</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>-</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>-</td>
<td>0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>?</td>
<td>-</td>
</tr>
</tbody>
</table>
Regulated Prices and Industry Regulators

• Not all prices are set by the free-market forces of supply and demand.
• In Britain, a number of prices are affected by regulators who may impose a pricing formula on suppliers.
• Good examples are rail fares, the cost of postage stamps and water bills.
• In the UK rail industry, some fares are unregulated allowing train operating companies to set their own prices.
• But around half of the fares charged for rail travellers are set by the rail regulator.

The EU has capped mobile phone roaming charges.

Many rail fares in the UK are heavily regulated.
After intervention by the EU Competition Commission, from 15 June 2017, those travelling within the EU will be able to use their mobile internet abroad at no extra charge.
Consumer Price Index for UK Rail Fares 2003-2014

Around 45 per cent of UK rail fares are subject to regulation (since 2015 this is limited to the rate of RPI inflation. All other fares are set at a commercial rate by the train operating companies such as First Great Western and Virgin Trains
Market Equilibrium & Disequilibrium

AQA 3.1.2.5
Possible Conflicts / Trade-Offs between Macroeconomic Objectives

AQA 3.2.3.5
What are the key objectives of macroeconomic policy?

- Price Stability (CPI Inflation of 2%)
- Growth of Real GDP (National Output)
- Falling Unemployment / Raising Employment
- Higher Average Living Standards (national income per capita)
- Stable Balance of Payments on the current account
- An Equitable Distribution of Income and Wealth
Possible Conflicts between Macro Policy Objectives

A crucial part of AS analysis and evaluation is to consider the causes of possible conflicts between key macro objectives.

- It is rare for a country to achieve **all** of its main macroeconomic aims at the same time:
  - Sustainable and balanced economic growth
  - Falling unemployment / rising employment rate
  - Price stability i.e. Low but positive rate of inflation
  - Equilibrium on a country’s external balance of payments

- Frequently conflicts can appear between the different aims
- As a result, difficult choices might have to be made about which objectives are to be given greatest priority
- The extent of these trade-offs between objectives will vary from one country to another since the needs of different nations will differ according to their stage of economic development
Examples of Possible Macro Conflicts

- Unemployment and inflation (price stability)
- Economic growth and inflation
- Economic growth and the balance of payments
- Economic Growth and Inequality

Conflicting Aims?

Views about which macroeconomic aim / objective ought to be given most importance involve making value judgements
The Phillips Curve – Unemployment and Inflation

The Phillips Curve shows a trade-off between inflation and unemployment. A demand-side policy to reduce unemployment could conflict with price stability.

As the rate of unemployment falls, labour shortages may cause an increase in wage inflation and higher unit labour costs.

When an economy is booming, so does the derived demand for and prices of components and raw materials – leading to higher costs.

Rising demand and falling unemployment can lead to suppliers raising their prices to increase their profit margins.

A favourable trade-off because the economy SRAS is elastic when unemployment is high.

Trade-off is worsening as the economy comes up against capacity constraints.
## Unemployment and Inflation Rates in the UK Economy

<table>
<thead>
<tr>
<th>Year</th>
<th>Consumer price inflation (%)</th>
<th>Unemployment rate (per cent)</th>
<th>Inflation</th>
<th>Unemployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>2.3</td>
<td>5.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>3.6</td>
<td>5.7</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>2009</td>
<td>2.2</td>
<td>7.6</td>
<td>↓</td>
<td>↑</td>
</tr>
<tr>
<td>2010</td>
<td>3.3</td>
<td>7.9</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>2011</td>
<td>4.5</td>
<td>8.1</td>
<td>↑</td>
<td>↑</td>
</tr>
<tr>
<td>2012</td>
<td>2.8</td>
<td>8.0</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>2013</td>
<td>2.6</td>
<td>7.6</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>2014</td>
<td>1.5</td>
<td>6.2</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>2015 (June)</td>
<td>0.0</td>
<td>5.5</td>
<td>↓</td>
<td>↓</td>
</tr>
</tbody>
</table>
Earnings for People in Work – Rate of Growth of Pay

There has been several years of slow pay growth since 2009 although wage inflation is now accelerating again with pay growing more quickly than prices.

Source: Office for National Statistics
Evaluating the Economic Effects of Rising Wages

- Will consumers see higher spending power?
- Will business profits and investment suffer?
- Will exporters lose competitiveness?
- Will higher wages cause increased costs?
- Increased pay may generate more tax
- Is there a risk of higher price inflation?
Possible Conflicts between Growth and Inflation

An overheating (fast-growing) economy may suffer accelerating inflation which then has negative effects on trade performance, business profits and jobs.

The risk of accelerating inflation is greatest when short run aggregate supply is inelastic i.e. When the economy has low spare capacity.

If an economy suffers high inflation and a slowdown in economic growth – this is called stagflation.

The conflict between growth and inflation can be resolved by having effective supply-side economic policies.
A Worsening Trade-Off between Growth and Inflation

An outward shift in AD from AD3 to AD4 causes a sharp rise in the general price level because AS is inelastic (output is close to capacity levels).
Economic Growth and the Balance of Payments

A period of rapid economic growth may come into conflict with a country’s balance of payments. Much depends on the income elasticity of demand for internationally traded goods and services.

When real incomes are rising at a rapid rate, consumers will tend to buy more imports – leading to a worsening of the trade balance.

Fast growing countries may suffer from high inflation which worsens the competitiveness of domestic industries including exporters.

Businesses will need to import extra raw materials, components and capital equipment to help expand production.
The data in the table shows the growth of real national output and the current account balance. Britain has run a current account deficit in each year, the size of the deficit during the economic recovery.
Policies to Improve Growth and the Trade Balance

Supply-Side Policies
- Reforms to improve labour productivity
- Incentives to boost research & development & innovation
- Measures to increase investment in export sectors

Exchange Rate Depreciation
- A depreciation of the currency (in theory) makes exports more price competitive and imports are more expensive
- But the effects are dependent on price elasticity of demand

Sound / Effective Macro Economic Policies
- Monetary policy to help keep inflation low relative to the inflation of major trading competitors
- Infrastructural investment to increase export competitiveness
Other Possible Conflicts between Macro Policies

The use of one macro policy can sometimes outweigh the impact of another – leading to policy conflict or reduced effectiveness

1. Policies designed to meet environmental goals might damage the competitiveness of domestic businesses in international markets. E.g. A carbon tax or a minimum price on CO2 emission permit

2. Measures to reduce inequality such as higher top rate income taxes or increased VAT on luxury consumer products may have consequences for inflation, trade and jobs

3. Expansionary fiscal policies involving higher government borrowing that have the effect – in the medium term – of driving inflation and interest rates higher (this is known as crowding out)

4. The effects of changes in interest rates on the distribution of income e.g. the effects on millions of savers of the period of exceptionally low interest rates in the UK over recent years
Possible Conflicts / Trade-Offs between Macroeconomic Objectives

AQA 3.2.3.5