Market Equilibrium

AP Microeconomics | Unit 2 | surplus, shortage, single and double shifts

Running example. Demand: $P = 6 - \frac{Q}{10}$. Supply: $P = \frac{Q}{10}$.

1. Where the curves cross

Equilibrium

The price at which **quantity demanded = quantity supplied**. Here the equilibrium price is \$3 and the equilibrium quantity is 30. The market *clears*: no one who wants to buy or sell at that price is left out.

2. Surplus and shortage

Price	Q_s and Q_d	Result	What happens next
\$5 (above equilibrium)	50 and 10	**surplus** of 40	unsold goods: sellers cut the price
\$1 (below equilibrium)	10 and 50	**shortage** of 40	buyers compete: the price is bid up

Surplus ⇒ price falls. Shortage ⇒ price rises. Either way the price moves toward equilibrium and stops there: the market corrects itself.

3. One curve shifts

Three steps, every time: (1) which curve shifts? (2) which way? (3) find the new crossing.

The good becomes popular: demand shifts right to $P = 8 - \frac{Q}{10}$; the new equilibrium is $P = \$4$, $Q = 40$.

	price	quantity
Demand increases	up	up
Demand decreases	down	down
Supply increases	down	up
Supply decreases	up	down

A demand shift moves price and quantity in the *same* direction; a supply shift moves them in *opposite* directions.

4. Both curves shift

Double shift rule

Work out each shift separately. Where the two agree, the result is certain. Where they disagree, it is **indeterminate**. One of price or quantity is always indeterminate.

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Demand increases and supply increases: quantity is pushed up twice, so it rises; price is pushed up by one shift and down by the other, so it is indeterminate (it depends on which shift is larger).

5. Equations, the short side, and steep supply

Equations. With $Q_d = 100 - 4P$ and $Q_s = 10 + 2P$: $100 - 4P = 10 + 2P$ gives $P = 15$, $Q = 40$. At $P = 20$, $Q_d = 20 < Q_s = 50$: a surplus of 30. At $P = 10$, $Q_d = 60 > Q_s = 30$: a shortage of 30.

The short side. Away from equilibrium the quantity actually traded is the smaller of Q_d and Q_s: in a shortage it is the quantity supplied, in a surplus the quantity demanded.

Steep supply. When short-run supply is highly inelastic, a rise in demand shows up mostly as a higher price: with a steep supply curve through (30, \$3), demand rising to $P = 8 - Q/10$ moves the price to about \$4.67 but the quantity only to about 33.

Where students lose points

1. Shifting a curve because the price changed: price is the result, not the cause.
2. Mixing up surplus (price too high) and shortage (price too low).
3. Shifting both curves when only one determinant changed.
4. Giving a definite answer for both price and quantity in a double shift.
5. No labels: P_1, Q_1, P_2, Q_2 on the axes, and an arrow on the shift.

Now practise it

Theory sticks once you use it. On **sad-academy.com** you'll find practice questions for this exact subtopic in the AP format, and an AI that grades your free-response answers against the scoring guidelines, the way an AP reader would.

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