

# 1.3 Supply and price elasticity of supply

Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

Total: 23 marks

**KEY WORDS** price elasticity of supply

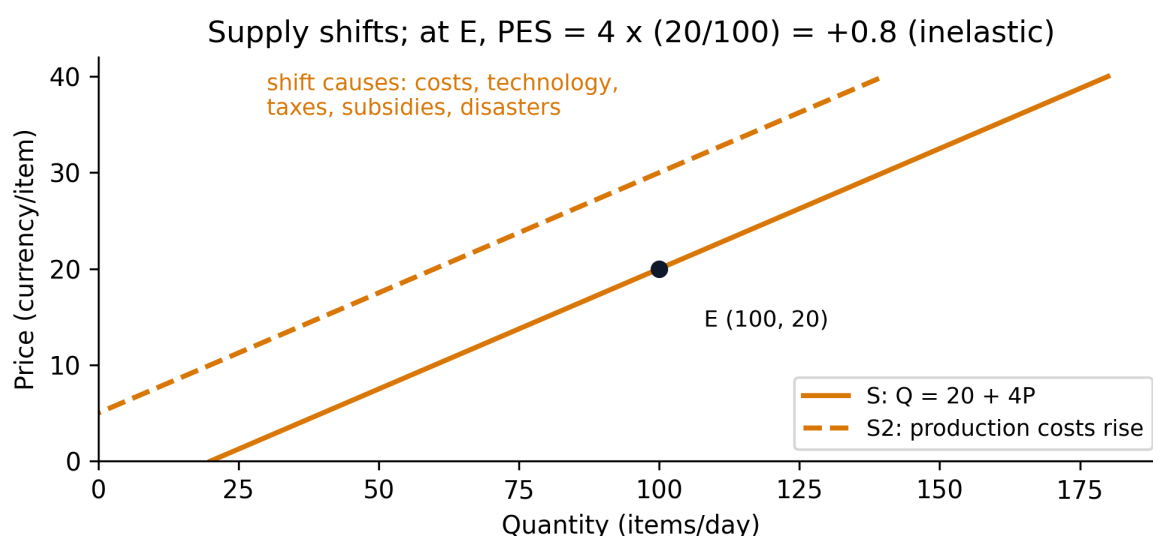
## Supply and price elasticity of supply

### Objective

Apply movements versus shifts of supply with their five causes, distinguish specific from ad valorem taxes, and calculate and interpret PES with the short-run/long-run distinction (spec 1.3.3, rows 1–2). Calculations use the shared model  $Q_s = 20 + 4P$ .

### 1 Key knowledge and worked examples

**Supply and PES.** Own-price changes move ALONG the supply curve; shifts come from production costs, technology, indirect taxes (specific per unit, ad valorem as a percentage), subsidies and natural disasters.  $PES = \% \Delta Q_s \div \% \Delta P$ ; it depends on time period, stock and perishability, factor mobility, legal constraints and spare capacity. All factors are variable only in the long run, so supply is more elastic then.



*Original model on the shared supply curve; the shift causes are listed in the text.*

## 2 Practice

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**2.1** For each event, state movement along or shift (and direction) of the supply curve:  
(a) the market price of wheat rises; (b) fertiliser costs rise. [2]

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**2.2** Name any three of the five shift causes of the supply curve. [3]

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**2.3** Distinguish a specific tax from an ad valorem tax with one example of each. [2]

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**2.4** On  $Q_s = 20 + 4P$ , price rises from 20 to 24. Calculate PES and interpret it. [3]

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**2.5** State the short-run and long-run factor conditions, and link them to PES. [2]

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**2.6** A firm holds large stocks of a durable good. What does this imply for its price elasticity of supply, and why? [2]

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### 3 Exam-style questions

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**3.1** (*Original.*) A technology improvement means sellers offer 24 more items per day at every price, so supply becomes  $Q_s = 4P + 44$ . With demand  $Q_d = 140 - 2P$ , find the new equilibrium price and quantity, and explain the adjustment from the old equilibrium (20, 100). [5]

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**3.2** (*Original.*) Explain why the price elasticity of supply of fresh strawberries differs between the picking day and two years later, naming two PES factors. [4]

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## Solutions

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**2.1** (a) Movement along the supply curve (a higher price raises quantity supplied). (b) Shift of the supply curve left – higher costs cut supply at every price.

**2.2** Any three of: costs of production, new technology, indirect taxes, subsidies, natural disasters.

**2.3** Specific: a fixed amount per unit (6 currency units per item of a carbon-neutral fuel).  
Ad valorem: a percentage of price (20% VAT on the item's price).

**2.4** At  $P = 20$ ,  $Q_s = 100$ ; at  $P = 24$ ,  $Q_s = 116$ .  $\% \Delta Q = 16\%$ ,  $\% \Delta P = 20\%$ , so  $PES = +0.8$ : inelastic supply (quantity responds less than proportionately).

**2.5** Short run: at least one factor fixed; long run: all factors variable. Supply response is limited in the short run, so PES rises over time.

**2.6** More elastic supply: stocks can be released immediately when price rises, so quantity supplied responds strongly even in the short run (perishable goods cannot do this).

**3.1** Set  $Q_d = Q_s$ :  $140 - 2P = 4P + 44$ , so  $96 = 6P$  and  $P = 16$ ,  $Q = 108$ . At the old price 20, supply now exceeds demand ( $100 \rightarrow$  supply = 124 at 20 vs demand 100), so excess supply pushes price down from 20 towards 16; quantity traded rises from 100 to 108 as the market moves along both curves to the new equilibrium.

**3.2** Picking day: supply is nearly fixed by the planted crop – highly inelastic (perfectly inelastic at the crop limit); stock is perishable, so it cannot be stored to answer price changes. Two years later: planting can fully adjust (all factors variable), new capacity and entry are possible, so supply is far more elastic. Factors named: time period (the dominant one) and availability of stock/perishability.

Local review guidance: percentage changes before dividing with the sign convention stated; the disequilibrium at the old price identified BEFORE the new equilibrium is solved; PES factors named from the specification list, not paraphrased. This is authored classroom guidance.