

2.1 Demand, supply and policy

Name: _____ Class: _____ Date: _____

Total: 25 marks

KEY WORDS price elasticity of demand • indirect tax

Demand, supply and policy

Objective

Apply movements versus shifts, equilibrium and welfare, the PED/PES calculations with the total-revenue test, and government intervention arithmetic on the shared model (syllabus 2.1–2.7).

1 Key knowledge and worked examples

Unit 2 toolkit. Demand $Q_d = 140 - 2P$ slopes downward by diminishing marginal utility; supply $Q_s = 20 + 4P$ slopes upward. Equilibrium (20, 100); CS 2500 and PS 1000; allocative efficiency where $P = MC$. PED at 20 → 22 is -0.4 with TR rising 2000 → 2112 (inelastic); PES at 20 → 24 is $+0.8$. Tax of 6: price 24, quantity 92, revenue 552, incidence 4:2. Subsidy of 6: price 16, quantity 108, cost 648. Maximum price 16: shortage 24; minimum price 24: surplus 24.

2 Practice

2.1 State the law of demand and its utility explanation. [2]

2.2 Name any four shift factors of the demand curve and any three of supply. [2]

2.3 Solve the model's equilibrium price and quantity. [2]

2.4 At $P = 12$ and $P = 25$, calculate the excess demand and excess supply respectively. [4]

2.5 Price rises from 20 to 22 and quantity demanded falls from 100 to 96. Calculate PED and use the total revenue test to classify demand. [4]

3 Exam-style questions

3.1 (*Original.*) The government imposes a specific tax of 6 on this market. Calculate the new consumer price, the price producers receive, the quantity traded, the government's revenue, and the split of the burden. [5]

3.2 (*Original, HL elasticity ranges.*) On the linear demand curve $P = 70 - Q/2$, show that demand is elastic at high prices and inelastic at low prices, and find the price where total revenue is maximised. [4]

3.3 (*Original, behaviour critique.*) Give two reasons real consumers may not maximise utility, naming the behavioural-economics evidence. [2]

Solutions

2.1 As price falls, quantity demanded rises (the law of demand) (1) – each extra unit gives less additional satisfaction (diminishing marginal utility), so only a lower price justifies buying more (1).

2.2 Demand: income; substitutes' prices; complements' prices; tastes; expectations; number of consumers (any four). Supply: costs of production; technology; indirect taxes; subsidies; number of sellers (any three).

2.3 $140 - 2P = 20 + 4P$ gives $120 = 6P$, so $P = 20$ and $Q = 100$.

2.4 At 12: $Q_d = 116$, $Q_s = 68$, excess demand = 48. At 25: $Q_s = 120$, $Q_d = 90$, excess supply = 30.

2.5 $\% \Delta Q_d = -4\%$, $\% \Delta P = +10\%$, so $PED = -0.4$. TR at 20 = 2000; TR at 22 = 2112: revenue ROSE when price rose, so demand is price INELASTIC over this range.

3.1 Supply becomes $Q_s = 4P - 4$: $140 - 2P = 4P - 4$ gives $P_c = 24$, $Q = 92$; producers keep $24 - 6 = 18$. Revenue = $6 \times 92 = 552$. Consumers pay $24 - 20 = 4$ more; producers receive $20 - 18 = 2$ less – a 4:2 split, consumers bearing more because demand ($PED = -0.4$) is the less elastic side.

3.2 $PED = (dQ/dP)(P/Q) = -2 \times P/Q$. At $P = 60$, $Q = 20$: $PED = -6$ (elastic). At $P = 10$, $Q = 60$: $PED = -1/3$ (inelastic). TR = $P(140 - 2P)$ peaks where marginal revenue = $70 - Q$ is zero: $Q = 70$, $P = 35$, TR = 2450 – exactly the unitary-PED point.

3.3 Any two with evidence: bounded rationality (limited calculation leads to rules of thumb); herd behaviour (choices copy others – seen in demand surges); framing (presentation changes the choice); imperfect information (choices made on partial facts).

Local review guidance: percentage changes before dividing; the shifted supply equation written out before the new equilibrium; (R1 3.3) the BEHAVIOURAL evidence named, not just “people are irrational”. This is authored classroom guidance.