1.4 Price determination, surplus, taxes and subsidies

Name: _____ Class: _____ Date: _____ **Total: 30 marks**

KEY WORDS consumer surplus • tax incidence

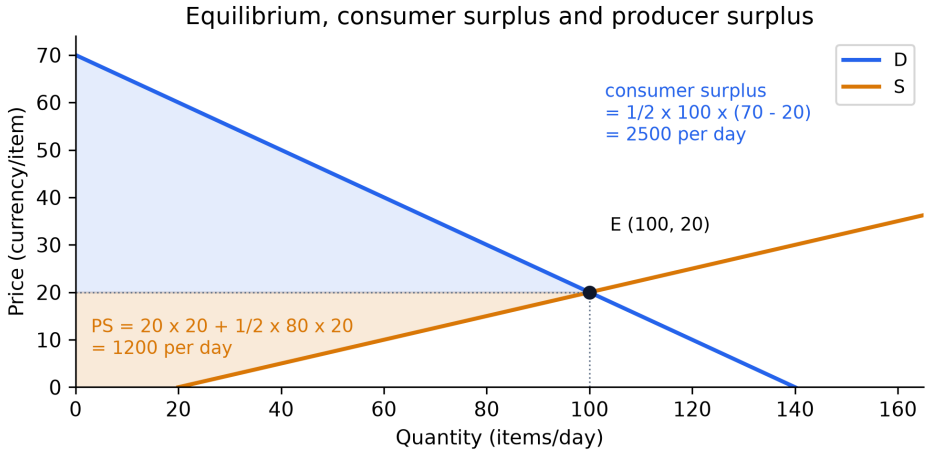
Price determination, surplus, taxes and subsidies

Objective

Determine equilibrium and disequilibrium adjustment, calculate consumer and producer surplus, explain the price mechanism's three functions, and analyse indirect tax and subsidy incidence (spec 1.3.4, rows 1–4). All calculations use the shared model $Q_d = 140 - 2P$, $Q_s = 20 + 4P$.

1 Key knowledge and worked examples

> **Markets at work.** Equilibrium solves $Q_d = Q_s$ (here P = 20, Q = 100); excess demand at a low price and excess supply at a high price are eliminated by price movement along unchanged curves. Consumer surplus is the area below the demand curve above price; producer surplus the area above supply below price. The price mechanism rationing, incentivises and signals. A unit tax of 6 splits the burden 4 (consumers) : 2 (producers) because demand is the more inelastic side.



Original model; the shaded areas are computed in the worked examples.

2 Practice

2.1 Find the equilibrium price and quantity of the shared model. [3]

2.2 At $P = 15$, calculate the excess demand and describe the pressure on price. [2]

2.3 The demand curve's vertical intercept is 70. Calculate consumer surplus at equilibrium. [3]

2.4 The supply curve reaches price zero at a quantity of 20. Calculate producer surplus at equilibrium. [3]

2.5 Name the three functions of the price mechanism. [2]

2.6 Demand shifts right while supply shifts left. State the one variable whose direction is certain, and why. [2]

3 Exam-style questions

3.1 *(Original.)* The government imposes a specific tax of 6 currency units per item on this market. Calculate the new consumer price, the price producers receive, the quantity traded, the government's revenue, and how the 6-unit burden splits between consumers and producers. [5]

3.2 *(Original.)* Instead, the government pays a subsidy of 6 per item. Calculate the new consumer price, producer price, quantity and the total cost to the government. [4]

3.3 *(Original.)* Explain, using elasticities, why consumers bear more of the 6-unit tax in this market, and state one condition under which producers would bear more. [3]

3.4 *(Original.)* A publicity campaign raises demand while input costs rise. Explain why the new equilibrium quantity cannot be predicted from these two facts alone. [3]