

Income & Cross-Price Elasticity

AP Microeconomics | Unit 2 | two elasticities where the sign is the answer

Running example. Everyone's income rises by 10%. People buy 20% more restaurant meals, 4% more bread, and 5% fewer instant noodles.

1. Income elasticity of demand

Income elasticity

$$E_I = \frac{\% \Delta Q_d}{\% \Delta \text{income}}$$

restaurant meals	$\frac{+20\%}{+10\%} = +2.0$	positive, above 1	normal good, a luxury
bread	$\frac{+4\%}{+10\%} = +0.4$	positive, between 0 and 1	normal good, a necessity
instant noodles	$\frac{-5\%}{+10\%} = -0.5$	negative	inferior good

Read the *sign* first (positive = normal, negative = inferior), then the *size*.

2. Cross-price elasticity

Cross-price elasticity

$$E_{xy} = \frac{\% \Delta Q_d \text{ of good } X}{\% \Delta P \text{ of good } Y}$$

price of tea +10%, coffee demanded +5%	+0.5	positive: substitutes
price of printers +10%, ink demanded -8%	-0.8	negative: complements
	0	unrelated goods

3. Here the sign is the answer

	on the bottom	sign	how to read it
Price elasticity of demand	the good's own price	dropped	compare with 1
Income elasticity	income	kept	+ normal, - inferior
Cross-price elasticity	the other good's price	kept	+ substitutes, - complements

4. A worked exam question

Income rises from \$40,000 to \$50,000; a household's gym visits rise from 8 to 12 a month.

$$\% \Delta \text{income} = \frac{50,000 - 40,000}{40,000} = +25\%, \quad \% \Delta Q_d = \frac{12 - 8}{8} = +50\%, \quad E_I = \frac{+50\%}{+25\%} = +2.0$$

Positive, so gym visits are a **normal** good; greater than 1, so they are a **luxury**. The classification, not the number alone, earns the point.

Where students lose points

1. Dropping the sign: here the sign is the classification.
2. Mixing up the signs: + is substitutes, – is complements.
3. Putting the wrong good's price on the bottom.
4. Calling a good “inferior” because the number is below 1 (inferior means negative).
5. Stopping at the number: classify the good in words.

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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