

Cambridge International AS Level Economics (9708)

Model Answers: AS Level

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Model Answers: Comparing Elasticities (Two 12-Mark Essays)

Prepared by: Abdur Rehman Shahzaib | Each essay: analysis of both elasticities (8 marks) + evaluation with a reserved conclusion mark (4 marks)

Each question below is answered twice: first as the full written answer to aim for in the exam, then as a point-form plan of the same answer for quick revision and timed practice.

Question 1: PED or XED for a Smartphone Producer

“Assess whether knowledge and understanding of price elasticity of demand (PED) or cross elasticity of demand (XED) is likely to be more useful to a producer of smartphones.” [12 marks]

Full written answer

Price elasticity of demand measures the responsiveness of quantity demanded of a product to a change in its own price: $PED = \% \text{ change in quantity demanded} \div \% \text{ change in price}$. Cross elasticity of demand measures the responsiveness of demand for one good to a change in the price of another good: $XED = \% \text{ change in quantity demanded of good X} \div \% \text{ change in price of good Y}$, where a positive value identifies substitutes and a negative value identifies complements.

Knowledge of PED helps the producer set its own price to manage revenue. A single smartphone brand faces many close substitutes, so demand for it is likely to be price elastic: a price cut should raise total revenue because the quantity sold rises proportionately more than the price falls, while a price rise would lose revenue as buyers switch brands. PED therefore guides launch pricing, the timing and depth of discounts on older models, and how far rising component costs can be passed on. It also varies across the range: a premium model with a loyal following faces less elastic demand than a budget model competing on price alone, so PED knowledge lets the firm price each segment differently.

Knowledge of XED matters because a smartphone producer operates in a market defined by rivalry and by an ecosystem of related products. A high positive XED with a rival's handset warns the firm exactly how much demand it will lose if the rival cuts its price, letting it plan its response in advance. Negative XED values connect the handset to its complements, cases, chargers, apps and network contracts: knowing these lets the firm price the handset keenly and recover profit on the accessories and services sold with it, and predict how dearer network contracts would damage handset sales.

In assessment, PED has the practical advantage: it can be estimated from the firm's own price and sales records, and it directly answers the decision the firm actually controls, what price to charge. XED is harder to estimate, since it needs data on rivals' prices and their effects, and the events it predicts are outside the firm's control. Both estimates also date quickly in a market where new models change the pattern of substitution every year. Against that, the smartphone market is precisely the kind of oligopolistic, ecosystem-based market where XED is at its most valuable: rivals' pricing moves and complement pricing shape revenue almost as much as the firm's own price does.

Conclusion. Both concepts are useful, but PED is likely to be more useful because it informs the pricing decision the producer itself makes and can be estimated reliably from its own data, while XED refines that decision by anticipating rivals and pricing the ecosystem. A smartphone producer would ideally use PED to set its price and XED to defend it.

The same answer in point form

Plan: PED vs XED for a smartphone producer

Definitions (both, with formulas)

- $PED = \% \Delta Q_d \div \% \Delta \text{own price}$: responsiveness to its own price
- $XED = \% \Delta Q_d \text{ of } X \div \% \Delta \text{ price of } Y$: positive = substitutes, negative = complements

Usefulness of PED (up to 4 marks)

- Brand faces many substitutes → demand likely elastic → price cut raises total revenue, price rise loses it
- Guides launch pricing, discounts on older models, passing on component costs
- Different PED per segment: premium (less elastic) vs budget (more elastic) → price each differently

Usefulness of XED (up to 4 marks)

- High positive XED with rival handsets → predicts sales lost if a rival cuts price → plan the response
- Negative XED with complements (apps, chargers, contracts) → price handset keenly, profit on ecosystem
- Warns how dearer complements (e.g. network contracts) would hit handset sales

Evaluation (up to 4 marks, 1 reserved for conclusion)

- PED easier to estimate: uses the firm's own sales data; XED needs rivals' data
- PED guides a decision the firm controls; XED predicts events it cannot control
- Both estimates date quickly as new models change substitution patterns
- BUT smartphones are an oligopoly with an ecosystem → XED unusually valuable in this market
- Conclusion: PED more useful (own pricing, own data); XED defends that price against rivals: use both

Question 2: PED or YED for a Car Producer

“Discuss whether knowledge of price elasticity of demand or income elasticity of demand would be of greater use to a business that produces cars.” [12 marks]

Full written answer

Price elasticity of demand measures the responsiveness of quantity demanded to a change in a product's own price: $PED = \% \text{ change in quantity demanded} \div \% \text{ change in price}$. Income elasticity of demand measures the responsiveness of demand to a change in consumer incomes: $YED = \% \text{ change in quantity demanded} \div \% \text{ change in income}$, where the sign identifies the type of good, positive for normal goods and negative for inferior goods.

Knowledge of PED lets the car producer predict the effect of a price change on demand reasonably accurately, and therefore on revenue. If demand for its cars is price elastic, which is likely at brand level because rival marques are close substitutes, a price cut raises total revenue while a price rise loses it. If demand were price inelastic, cutting the price would reduce revenue, and if PED were unitary a price change would leave revenue unchanged. This knowledge guides list prices, the size of dealer discounts, and whether cost increases can safely be passed to buyers.

Knowledge of YED tells the business how demand will move with the economy, which matters greatly for a product as income-sensitive as a car. Cars, especially better and more luxurious models, have a YED above 1: when incomes rise, demand for them rises more than proportionately, so the firm can shift production towards higher-specification models with more features and functions. YED also helps the firm plan for the future, ensuring it has the capacity and resources to meet demand in an upturn, and warning it to promote its basic, cheaper models when incomes fall in a recession.

In discussion, PED has clear practical advantages: it should be easier for the firm to calculate than YED, since it comes from the firm's own price and sales data rather than economy-wide income figures, and it points directly to a decision, whether the price should be raised or lowered. Its reliability still depends on the availability of substitutes, the large share of income a car purchase takes, and the time period considered. YED's value depends on knowing whether each model is seen as a normal or inferior good and on whether the economy is entering an upturn or a downturn, which is itself hard to forecast; the firm cannot control income changes, only prepare for them.

Conclusion. PED is likely to be of greater use, because it is easier to estimate and directly guides the pricing decisions the business makes every day, but YED is still of real use for longer-term planning of the model range and capacity across the economic cycle. The strongest businesses use PED to set today's prices and YED to decide which cars to build for tomorrow.

The same answer in point form

Plan: PED vs YED for a car producer

Definitions (both, with formulas)

- $PED = \% \Delta Q_d \div \% \Delta \text{ price}$: responsiveness to its own price
- $YED = \% \Delta Q_d \div \% \Delta \text{ income}$: sign gives type of good (+ normal, - inferior)

Usefulness of PED (up to 4 marks)

- Predicts the effect of a price change on demand reasonably accurately
- Elastic demand $\rightarrow$ price cut raises revenue; inelastic $\rightarrow$ price cut lowers revenue; unitary $\rightarrow$ no change

- Brand-level demand likely elastic (rival marques are substitutes) → guides list prices and discounts

Usefulness of YED (up to 4 marks)

- Shows the effect of income changes: incomes rise → shift production from basic to better, more luxurious cars
- Luxury cars have $YED > 1$ → demand grows faster than income in a boom
- Helps plan for the future: capacity and resources ready to meet demand; push budget models in a downturn

Evaluation (up to 4 marks, 1 reserved for conclusion)

- PED easier to calculate than YED (firm's own data) and says directly whether to raise or cut price
- But PED depends on substitutes available, share of income spent, and the time period
- YED shows how far income changes affect car spending, but needs to know normal vs inferior and upturn vs downturn
- Firm controls its price (PED decision) but only reacts to incomes (YED forecast)
- Conclusion: PED of greater use for day-to-day pricing; YED still valuable for planning the model range over the cycle

Exam tip: the template behind both answers

Every "which elasticity is more useful" question follows one skeleton: define both with formulas, analyse each one applied to the named industry (about 4 marks each), then evaluate by comparing how easily each is measured, what decision each one guides, and what each depends on, and always finish with a direct judgement naming the winner and the circumstances, because one mark is reserved for the conclusion. Change the industry details, smartphones, cars, a recession economy, and the same skeleton answers Questions 2, 4, 5, 7, 9, 10, 12 and 13 of your topical bank.

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Model Answer: Determinants of Demand for Electric Cars

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"From 2030, most new car production in the United Kingdom (UK) will be of electric cars. Excluding the price of electric cars, explain the determinants of demand for electric cars and consider which of these determinants is likely to be of greatest significance at the present time." [8]

Knowledge and Understanding (AO1)

Demand is the quantity of a good that consumers are willing and able to buy at each price over a period of time. A change in the price of electric cars causes a movement **ALONG** the demand curve, so this question is about the non-price determinants, the conditions of demand, which shift the whole demand curve. The main determinants are: consumer incomes, the prices of related goods (substitutes and complements), tastes and preferences, government policy, and expectations about the future.

Analysis: the determinants applied to electric cars (AO2)

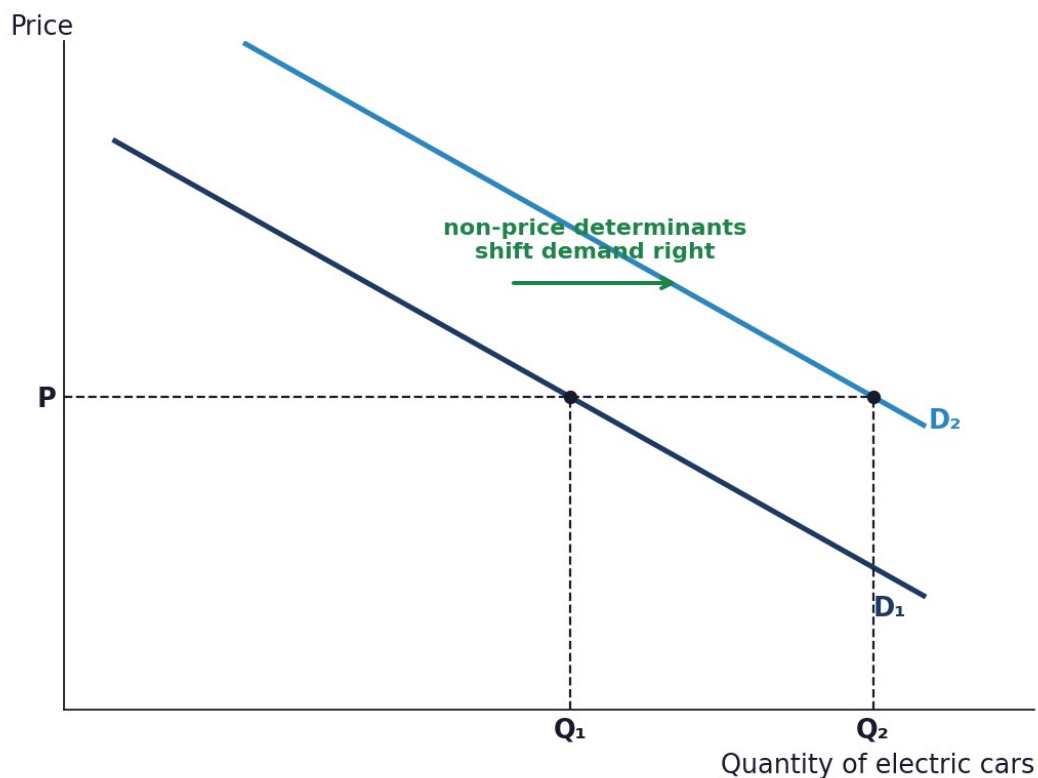
Income. An electric car is a normal good, and for most households an expensive, income-elastic purchase. As real incomes rise, more households can afford one, so demand shifts right; in a recession, demand would fall back even with no change in the car's price.

Prices of related goods. The closest substitute is the petrol or diesel car: a rise in the price of petrol cars, or in the cost of running them through higher fuel prices and fuel taxes, pushes buyers towards electric cars. Complements work the other way: electric cars are consumed together with electricity and charging services, so cheaper home charging, or a denser network of public charging points, raises the demand for the cars themselves, while high electricity prices hold it back.

Tastes and preferences. Growing environmental awareness has shifted preferences towards low-emission transport. Advertising by manufacturers, media coverage of climate change, and the social image of driving electric all move the demand curve right without any price change.

Government policy and expectations. Governments subsidise purchase through grants and tax advantages, exempt electric cars from charges such as low-emission-zone fees, and fund charging infrastructure. The announcement that from 2030 most new UK car production will be electric also changes **EXPECTATIONS**: buyers anticipate that petrol cars will lose resale value and become harder to run, so some bring their switch to electric forward to the present.

Each of these determinants shifts the demand curve for electric cars to the right, from D_1 to D_2 in the diagram, so a greater quantity (Q_2 rather than Q_1) is demanded at the **SAME** price P .



A rightward shift in the demand for electric cars: more demanded at every price

Evaluation: which determinant matters most at present (AO3)

At the present time, **government policy, together with the expectations it creates, is likely to be the most significant determinant.** The 2030 commitment is not a marginal influence on demand but a change to the whole future of the market: it tells every buyer that the petrol car's days are numbered, which simultaneously lowers the expected resale value of the substitute and guarantees that charging infrastructure, the key complement, will keep expanding. Policy also works through several channels at once, purchase incentives, fuel taxation and emission zones, so it reinforces the other determinants rather than merely sitting alongside them.

A reasonable counter-argument is that income or relative running costs matter more day to day: electric cars remain expensive, so for many households the binding constraint is affordability, and a sharp rise in petrol prices does more to fill electric showrooms in any given month than a distant 2030 deadline. However, these influences fluctuate in both directions, while the policy commitment pushes demand in one direction only and underpins the long-term decisions of both consumers and producers. On balance, government policy and the expectations flowing from the 2030 switch are of the greatest significance at present, with the prices of substitutes (petrol cars and fuel) the strongest of the remaining determinants.

Exam tip

The question excludes the good's own price, so never discuss movements along the curve, every point must be a SHIFT factor, and the diagram should show D_1 to D_2 at a constant price. The command "consider which" is the evaluation: pick ONE determinant, justify it against at least one rival, and anchor the choice in the stem (the 2030 announcement is given to you, use it). Covering three or four determinants well beats listing seven.