

Ten things

you need to know about elasticity of demand

Ian Marcousé provides a framework of key concepts for your marketing revision



1 Elasticity of demand

The extent to which demand for a product is affected by an independent variable.

Example: sales of chocolate are affected by hot weather. Above 20°C, for every 1 extra degree, sales of chocolate can fall by 10% — so the temperature elasticity of demand for chocolate is high.

Advantage: elasticity measures the degree of correlation between a variable and demand for the product. This helps companies forecast future demand.

Disadvantage: because of the many changing factors that affect demand, it can be hard to know if the degree of elasticity measured in the past will be the same today or in the future.

2 Income elasticity

The extent to which demand for a product changes when consumers' real incomes change (i.e. after allowing for price rises/inflation). If wages are up by 3% but inflation is 2%, real incomes are up by 1%.

Formula: $\frac{\% \text{ change in demand}}{\% \text{ change in real incomes}}$

Example: in 2011 sales of Bentley cars doubled in China and rose by 32% in the USA. Real incomes that year rose by 9% in China and 2% in America. So demand for Bentleys is strongly and positively correlated to changes in income.

Advantage: because economies tend to grow over time, causing real incomes to rise, it is great to have products that have high positive income elasticity.

Disadvantage: while companies have a high degree of influence over the pricing of their products, they have no control over consumer incomes, so income elasticity is a relatively passive business concept.

3 Negative income elasticity

When income and the sales of a product are negatively correlated, so a rise in real incomes cuts demand, and a fall boosts demand.

Example: during the 2009 recession, falling real incomes saw sales boom at Poundland. In 2015/16 a 2% rise in real incomes saw like-for-like sales at Poundland fall by 4%. Implicitly, Poundland's income elasticity is negative and can be measured at around -2.

Advantage: if Poundland's management had known this, they surely wouldn't have spent £55 million buying 99p Stores in 2015, at a time of economic recovery.

Disadvantage: there aren't any disadvantages — it is always important for managers to know about a factor that could have a major impact on demand.

4 Price elasticity

The extent to which a product's sales are affected by a price change.

Formula: $\frac{\% \text{ change in demand}}{\% \text{ change in price}}$

Example: in 2015 Roberts Bakery cut its average bread prices by 5%; sales volumes rose 7.5%. By implication, the price elasticity of demand is $+7.5\%/-5\% = -1.5$

Advantage: knowing your price elasticity of demand (PED) enables you to make wiser decisions about pricing and to warn your factory about the likely effect on production and stock levels.

Disadvantage: you may assume wrongly that your past PED is the same today, but it will have changed if competition is markedly more or less fierce.

5 Price elastic

When demand for a product is highly dependent on price. Specifically, a given percentage change in price causes a higher percentage change in sales volume. So PED is greater than (-)1.

Example: in 2015 sales of Tyrrells' crisps rose 25% when their price was cut by 5%. Implicitly, the price elasticity of demand is $+25\%/-5\% = -5$

Advantage: having a price-elastic product means revenue can be boosted by cutting price.

Disadvantage: a price cut boosts revenue because buyers of rival products switch to you. This is likely to force the rival(s) to respond, possibly kicking off a price war.

6 Price inelastic

When price has little effect on demand for a product. Specifically, a given percentage change in price causes a lesser percentage change in sales volume. So PED is between 0 and (-)1.

Example: in 2015, in the booming market for popcorn, even though market leader Butterkist increased its prices by 5%, sales rose by 15%. The sales rise was due to consumer fashion for popcorn; Butterkist realised that its PED was low, and boosted revenue and profits by slipping through a price rise.

Advantage: having a price-inelastic product means revenue can be boosted by increasing price.

Disadvantage: there isn't one — a price rise on a price-inelastic product is likely to boost profits considerably.

7 Product differentiation

The extent to which consumers see your product as being different from rivals.

Example: two pairs of black trainers made in the same factory with the same materials may be seen as distinctly different if one has a Nike swoosh and the other a Lonsdale logo.

Advantage: strong product differentiation can come from image-based factors such as branding, or real factors such as stylish design. Either way, a highly differentiated product will have low price elasticity, i.e. be relatively price inelastic.

Disadvantage: for consumers, high differentiation can be penalising if the producer exploits the situation by charging high prices, e.g. Arsenal FC season tickets.

8 Revenue

As affected by price elasticity, Revenue = Quantity × Price. A product's PED affects the quantity sold when the price changes, so it has a significant effect on revenue.

Example: a £1 item selling 100 units has a PED of -2. Its price is increased by 10%. So revenue changes from $£1 \times 100 = £100$ to $£1.10 \times 80 \text{ units} = £88$. Revenue always falls when price is increased on a highly price-elastic item.

Advantage: companies know that a price cut will boost revenue on a price-elastic product and that a price rise will boost revenue on a price-inelastic product.

Disadvantage: revenue shouldn't be the basis for business decision making — profit is the key. A price cut on a price-elastic product might boost revenue but cut profit (because higher sales volumes mean costs might rise by more than revenues).

9 Unitary price elasticity

When price elasticity is approximately (-)1, meaning that a given price change leads to a similar change in sales volume, leaving revenue largely unchanged.

Example: a product with sales of 200 units has a PED of -1. If its £2 price is cut by 10%, sales rise by 10% to 220 units. So revenue was $£2 \times 200 = £400$ and is now $£1.80 \times 220 = £396$

Advantage: knowing that PED is unitary should make any business look for ways to increase differentiation and therefore reduce the price elasticity of demand.

Disadvantage: it can be hard to increase differentiation without alienating some of your traditional customers. A Ford Focus is a classic family car — making it sportier or flashier might increase differentiation at the cost of lower sales.

10 Always negative

Business owners might refer to a product as having a PED of around 3. Because price elasticity is always negative, no one bothers to mention it, i.e. it's just assumed.

Example: a 20% special offer price cut on Galaxy chocolate might boost demand by 40%, making its PED $+40\%/-20\% = -2$. A 10% price rise on Nike Archive trainers cuts demand by 4%, making their PED $-4\%/+10\% = -0.4$. Whether price goes up or down, PED is always negative because demand always goes in the opposite direction.

Advantage: you always know that PED is negative, making the calculations more predictable.

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