

Cross Price Elasticity of Demand

Cross price elasticity (CPed) measures the responsiveness of demand for good X following a change in the price of a **related good Y**. We are looking here at the effect that **changes in relative prices within a market** have on the pattern of demand. With [cross elasticity](#) we make a distinction between **substitute** and **complementary products**:

Substitutes:

With substitute goods such as brands of cereal, an increase in the price of one good will lead to an increase in demand for the rival product. The cross price elasticity for two substitutes will be positive.

For example, the iPhone now provides genuine competition for the Blackberry in providing users with 'push technology' to send all emails through to a mobile device. But how many Blackberry users will switch? Many have become addicted to their machines!

Another good example is the cross price elasticity of demand for music. Sales of digital music downloads have been soaring with the growth of broadband and falling prices for downloads. As a result, sales of [traditional music CDs](#) are declining at a steep rate.

Complements:

Complements are in **joint** demand. The CPED for two complements is negative.

The stronger the relationship between two products, the higher is the co-efficient of cross-price elasticity of demand. For example with two close substitutes, the cross-price elasticity will be strongly positive. Likewise when there is a strong complementary relationship between two products, the cross-price elasticity will be highly negative. Unrelated products have a zero [cross elasticity](#).

Pricing strategies for substitutes:



If a competitor cuts the price of a rival product, firms use estimates of CPED to predict the effect on demand and total revenue of their own product. For example, two or more airlines competing with each other on a given route will have to consider how one airline might react to its competitor's price change. Will many consumers switch? Will they have the capacity to meet an expected rise in demand? Will the other firm match a price rise? Will it follow a price fall?

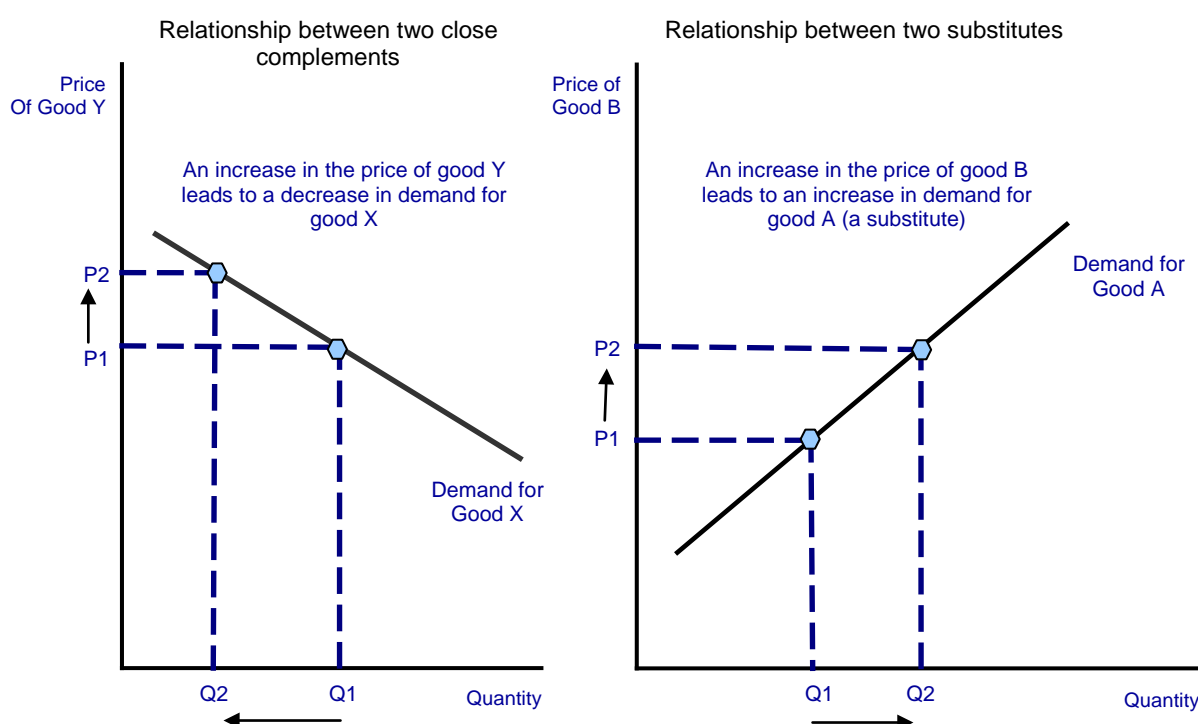
Pricing strategies for complementary goods:

Popcorn, soft drinks and cinema tickets have a high negative value for cross elasticity— they are strong complements. [Popcorn has a high mark up](#) i.e. pop corn costs pennies to make but sells for more than a pound. If firms have a reliable estimate for CPed they can estimate the effect, say, of a two-for-one cinema ticket offer on the demand for popcorn.

The additional profit from extra popcorn sales may more than compensate for the lower cost of entry into the cinema. For some movie theatres, the revenue from concessions stalls selling popcorn; drinks and other refreshments can generate as much as 40 per cent of their annual turnover.

Brand and cross price elasticity

When consumers become habitual purchasers of a product, the cross price elasticity of demand against rival products will decrease. This **reduces the size of the substitution effect** following a price change and makes demand less sensitive to price. The result is that firms may be able to charge a higher price, increase their total revenue and achieve higher profits.



Suggestions for further reading on cross price elasticity of demand

[Falling demand for Chelsea Tractors!](#) (BBC news, June 2008)

[Impact of rising oil prices in India](#) (BBC news, July 2008)

[Oil prices and the demand for new aircraft](#) (Tutor2u blog, July 2008)

[Oil prices and the demand for scooters](#) (Tutor2u blog, June 2008)

[Price of oil and the demand for camels!](#) (Greg Mankiw's blog, May 2008)

Party Season Nearly Christmas

This mnemonic will help students remember quickly what the figure given by the cross price elasticity of demand formula means.

Positive Substitutes

Negative Complements