

Other Types of Elasticity

All elasticities measure how one economic variable affects another. We will consider two other common elasticities: income elasticity of demand and cross-price elasticity.

Income Elasticity of Demand

When incomes rise, the demand for most goods tends to increase, but by how much? Does a 10% increase in income lead to a 2% increase in amount sold or a 20% increase (or perhaps even a decrease)? The income elasticity of demand measures how the amount purchased responds to a change in income; more specifically, the percent change in quantity divided by the percent change in income. Sales of most goods tend to rise as incomes rise. In this case, the income elasticity of demand will be positive and the goods are considered normal goods. Sometimes economists draw a distinction between goods which are less sensitive to income (necessities - income elasticity is positive but less than one) and those that are more sensitive to income (luxuries - income elasticity is greater than one). As discussed earlier, in some cases, as incomes decline, sales of certain goods increase. Inferior goods are goods with an income elasticity of demand that is negative. Knowing the income elasticity of demand for its product can help a business estimate how it will be affected by changes in income; for example, how it will be affected by declines in income that would occur during a recession.

STOP AND THINK: Suppose a company offers different products that have different income elasticities of demand - how can it adjust its offerings in anticipation of an economic slowdown?

Cross-Price Elasticity

Businesses need to understand how to price their products (based in part on elasticity of demand) and how sensitive their products are to changes in income (income elasticity of demand), but they also have to understand how the prices set by their competitors affect their sales. There are many potential competitors for some products, should a business worry about all of them or focus on a certain few? The cross-price elasticity of demand helps to determine the degree by which the amount sold will be affected by prices of related products. More specifically, cross-price elasticity is the percent change in quantity divided by the percent change in the price of another product. If the price of another product increases and it leads to an increase in the amount of your product sold, the cross-price elasticity is positive and the goods are considered to be substitutes (if Pepsi raises its price, sales of Coke will rise). On the other hand, if the price of another product increases and it results in a decrease in the sales of your product, the cross-price elasticity is negative and the goods are considered complements.

A good may have many substitutes, but should the business focus on all of them? It may want to consider only products that are close substitutes. For example, the cross-price elasticity between Pizza Hut and Papa John's may be 3 while the cross-price elasticity between Pizza Hut and CiCi's may be 0.2. Since the cross-price elasticities are both positive, they both are substitutes for Pizza Hut. However, given limited resources, Pizza Hut may choose to focus on Papa John's as its primary competitor and not pay too much attention to CiCi's. The same applies to complements. Perhaps the cross-price elasticity between pizza and Coke is -2 while the cross-price elasticity between pizza and salad is -0.3. Both Coke and salad are complements to pizza, but sales of Coke are going to be more sensitive to pizza prices. Thus, the higher the absolute value of the cross-price elasticity, the closer the relationship between the goods. Businesses should devote their attention to goods that are close substitutes and close complements (not all substitutes and complements). It should also be noted that

some goods have cross-price elasticities that are close to zero which indicate that they are unrelated to one another.

STOP AND THINK: A fast food chicken restaurant offers discounts on drinks in order to increase business - is this the best strategy for a chicken restaurant? Hint: the restaurant closed down within a year.