Elasticity

Elasticity is a way of measuring the sensitivity of one variable to changes in another variable that influences it. **Peter Smith** explains how consumers and firms respond to changes in the price of and demand for goods

The price elasticity of demand (PED)

- This measures the sensitivity of the quantity demanded of a good to a change in its price.
- It is calculated as the percentage change in quantity demanded divided by the percentage change in price.
- The PED is negative because an increase (decrease) in price leads to a decrease (increase) in the quantity demanded.
- Demand is said to be **elastic** when the percentage change in quantity is larger than the percentage change in price (i.e. PED is > 1).
- Demand is said to be **inelastic** when the percentage change in quantity is smaller than the percentage change in price (i.e. PED is < 1).

What determines the size of the PED?

- The main influence on the PED is the availability of substitutes: if consumers can easily find a close alternative to good X, they will switch to it if there is an increase in the price of good X. For example, an increase in the price of sausages may induce consumers to buy burgers instead.
- If consumers regard a particular product as a **necessity**, demand is likely to be inelastic — consumers will not be sensitive to price.
- If consumers regard a good as a **luxury**, demand will tend to be elastic, as consumers will be more sensitive to price.
- Demand will tend to be inelastic when spending on a good is a small proportion of total expenditure, but relatively elastic when spending makes up a large portion of the total.
- Demand will tend to be more elastic in the long run, when consumers have time to adjust their spending pattern.

The income elasticity of demand (YED)

- This measures the sensitivity of the quantity demanded of a good to a change in consumer income.
- It is calculated as the percentage change in quantity demanded divided by the percentage change in income.
- The YED may be positive or negative, depending on whether the good is a **normal** or an **inferior** good.
- A normal good is one where the income elasticity is positive, so that an increase (decrease) in income leads to an increase (decrease) in the quantity demanded. For example, an increase in consumer income tends to lead to an increase in the demand for restaurant meals, which would be expected to be a normal good.
- An inferior good is one where the income elasticity is negative, so that an increase (decrease) in income leads to a decrease (increase) in the quantity demanded. For example, bus journeys tend to be seen as an inferior good, such that an increase in consumer incomes tends to lead to a fall in the demand for bus journeys.

The cross-price elasticity of demand (XED)

- This measures the sensitivity of the quantity demanded of good X to a change in the price of good Y.
- It is calculated as the percentage change in quantity demanded of good X divided by the percentage change in the price of good Y.
- The XED may be positive or negative, depending on whether goods X and Y are **substitutes** or **complements**.
- When two goods X and Y are substitutes, an increase in the price of good Y will be likely to result in an increase in demand for good X.
- When two goods X and Y are complements, an increase in the price of good Y will be likely to result in a decrease in demand for good X.

The price elasticity of supply (PES)

- This measures the sensitivity of the quantity supplied of a good to a change in its price.
- It is calculated as the percentage change in quantity supplied divided by the percentage change in price.
- The PES is positive because an increase (decrease) in price leads to an increase (decrease) in the quantity supplied.
- The PES measures the extent to which firms will respond to a change in the selling price of their products.
- Firms may not be able to expand supply substantially in the short run, so the PES is likely to be more elastic in the long run than in the short run.

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