

Module 4b: Market Elasticity

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Cross Price Elasticity of Demand

Price Elasticity of Supply

Determinants of Supply Elasticity

Cross Price Elasticity of Demand

Cross Price Elasticity Definition

The percentage change in the demand for one good (holding its price constant) divided by the percentage change in the price of a related good (complement or substitute).

The responsiveness of change in demand of one good to the change in prices of related goods.

Formula

Formula for computing cross elasticity of demand.

$$E_{XY} = \frac{\% \Delta Q_X}{\% \Delta P_Y}$$

Cross Price Elasticity

Substitutes

$E_{XY} > 0$ (positive)

An **increase in the price** of X would **increase the quantity** of Y demanded at each price. For example, coke and pepsi.

Complements

$E_{XY} < 0$ (negative)

An **increase in the price** of X would **decrease the quantity** of Y demanded at each price. For example, milk and cookies.

Elasticity of Income

Income Elasticity of Demand E_I

The percentage change in demand for any good, holding its price constant, divided by the percentage change in income.

The responsiveness of demand to changes in income, holding the good's relative price constant.

$$E_I = \frac{\% \Delta Q}{\% \Delta I}$$

Elasticity of Income

Normal Good

$E_I > 0$ (positive)

- ▶ A good is consider a **luxury** if $E_I > 1$. For example, a diamond.
- ▶ A good is consider a **necessity** if $0 < E_I < 1$. For example, cereal.

Inferior Good

$E_I < 0$ (negative). For example, instant noodles, public transportation (Bloomington).

Price Elasticity of Supply

Price Elasticity of Supply

The responsiveness of the quantity supplied of a good to a change in its price

The percentage change in quantity supplied divided by the percentage change in price

$$E_S = \frac{\% \Delta Q}{\% \Delta P}$$

Price Elasticity of Supply

- ▶ Supply is **perfectly inelastic** if the supply curve is vertical and the elasticity of supply is 0.
- ▶ Supply is **unit elastic** if the supply curve is linear and passes through the origin. (Note that slope is irrelevant.)
- ▶ Supply is **perfectly elastic** if the supply curve is horizontal and the elasticity of supply is infinite.

Determinants of Supply Elasticity

Two determinants

1. Resources Substitution

The easier it is to substitute among the resources used to produce a good or service, the greater is its elasticity of supply.

- ▶ 1931 Bugatti Royale vs. corn

2. Time frame for supply decision

Time frame for supply decision. The longer the time allowed for adjustment, the more elastic is supply. Firms can find ways to increase /decrease output.

Resources can flow into (or out of) an industry through expansion (or contraction) of existing firms.

Momentary supply is perfectly inelastic in the short-run.

Seats in Assembly Hall

- ▶ Short-run supply is somewhat inelastic.
- ▶ Long-run supply is the most elastic.