Mgt 504: Microeconomics for Managers
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Elasticity Handout

Elasticity is an important concept in economics. It shows the relationship between the percent change in one variable and the percent change in another variable. Percentages are used to neutralize the effects of the units chosen. In the general form:

Elasticity = $\%\Delta Q_x / \%\Delta y$,

where Δ is the change and y is an independent variable. A point elasticity is appropriate if you have the equation for a curve and you want to determine the elasticity at a point on that curve. Meanwhile, an arc elasticity is appropriate when you have two points on a curve.

Here are some important elasticities:

Variable	Basic Form	Point Elasticity	Arc Elasticity
Price	$\frac{\%\Delta Q_x}{\%\Delta P_x}$	$\frac{\Delta Q_x}{\Delta P_x} \cdot \frac{P_x}{Q_x}$	$\frac{(Q_{x2} - Q_{x1})/(Q_{x2} + Q_{x1})}{(P_{x2} - P_{x1})/(P_{x2} + P_{x1})}$
Income	$\frac{\%\Delta Q_x}{\%\Delta I}$	$\frac{\Delta Q_x}{\Delta I} \cdot \frac{I}{Q_x}$	$\frac{(Q_{x2} - Q_{x1})/(Q_{x2} + Q_{x1})}{(I_2 - I_1)/(I_2 + I_1)}$
Cross-Price	$\frac{\%\Delta Q_x}{\%\Delta P_y}$	$\frac{\Delta Q_x}{\Delta P_y} \cdot \frac{P_y}{Q_x}$	$\frac{(Q_{x2} - Q_{x1})/(Q_{x2} + Q_{x1})}{(P_{y2} - P_{y1})/(P_{y2} + P_{y1})}$

The signs of the elasticities:

Price: The price elasticity is always negative, although it is often reported as an absolute value that is positive. When the absolute value is between 0 and 1, the price elasticity is inelastic. When it is greater than 1, the price elasticity is elastic. The price elasticity increases as the number of substitutes increase.

Income: The income elasticity of a normal good is positive, while the income elasticity of an inferior good is negative. Necessities tend to have low income elasticities, while luxuries tend to have high income elasticities.

Cross-Price: The cross price elasticity of substitutes is positive, while the cross price elasticity of complements is negative.