Managerial Economics in a Global Economy, 5th Edition by Dominick Salvatore

Chapter 3

Demand Theory

Law of Demand

- There is an inverse relationship between the price of a good and the quantity of the good demanded per time period.

- Substitution Effect
- Income Effect

Individual Consumer's Demand

$$Qd_X = f(P_X, I, P_Y, T)$$

Qd_X = quantity demanded of commodity X by an individual per time period

P_X = price per unit of commodity X

I = consumer's income

P_Y = price of related (substitute or complementary) commodity

T = tastes of the consumer

$$Qd_X = f(P_X, I, P_Y, T)$$

$\Delta Qd_X/\Delta P_X < 0$

$\Delta Qd_X/\Delta I > 0$ if a good is normal

$\Delta Qd_X/\Delta I < 0$ if a good is inferior

$\Delta Qd_X/\Delta P_Y > 0$ if X and Y are substitutes

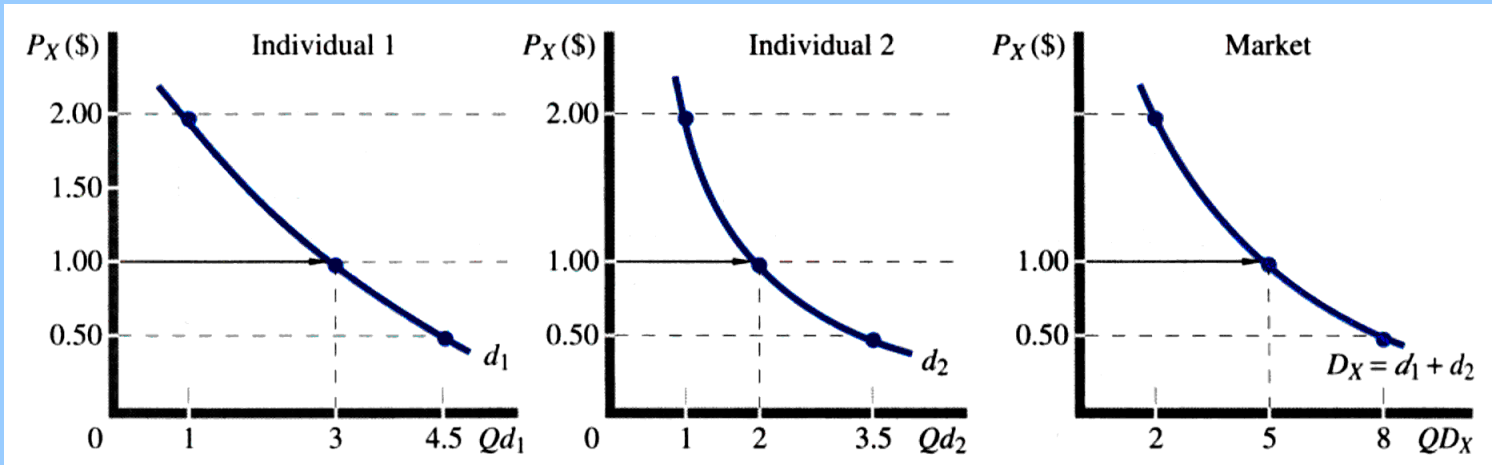
$\Delta Qd_X/\Delta P_Y < 0$ if X and Y are complements

Market Demand Curve

- Horizontal summation of demand curves of individual consumers

- Bandwagon Effect
- Snob Effect

Horizontal Summation: From Individual to Market Demand



Market Demand Function

$QD_X = f(P_X, N, I, P_Y, T)$

QD_X = quantity demanded of commodity X

P_X = price per unit of commodity X

N = number of consumers on the market

I = consumer income

P_Y = price of related (substitute or complementary) commodity

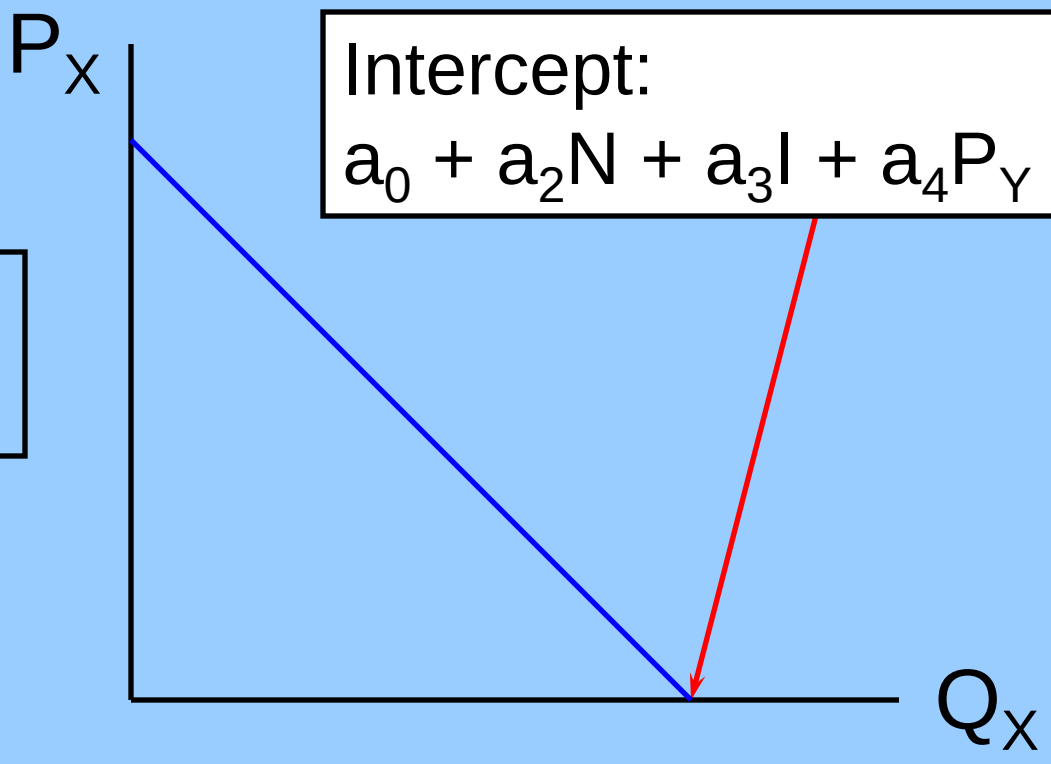
T = consumer tastes

Demand Faced by a Firm

- Market Structure
  - Monopoly
  - Oligopoly
  - Monopolistic Competition
  - Perfect Competition
- Type of Good
  - Durable Goods
  - Nondurable Goods
  - Producers' Goods - Derived Demand

Linear Demand Function

$$Q_X = a_0 + a_1P_X + a_2N + a_3I + a_4P_Y + a_5T$$



Intercept:
$a_0 + a_2N + a_3I + a_4P_Y + a_5T$

Slope:
$\Delta Q_X/\Delta P_X = a_1$

Price Elasticity of Demand

Point Definition $$E_P = \frac{\Delta Q / Q}{\Delta P / P} = \frac{\Delta Q}{\Delta P} \cdot \frac{P}{Q}$$

Linear Function $$E_P = a_1 \cdot \frac{P}{Q}$$

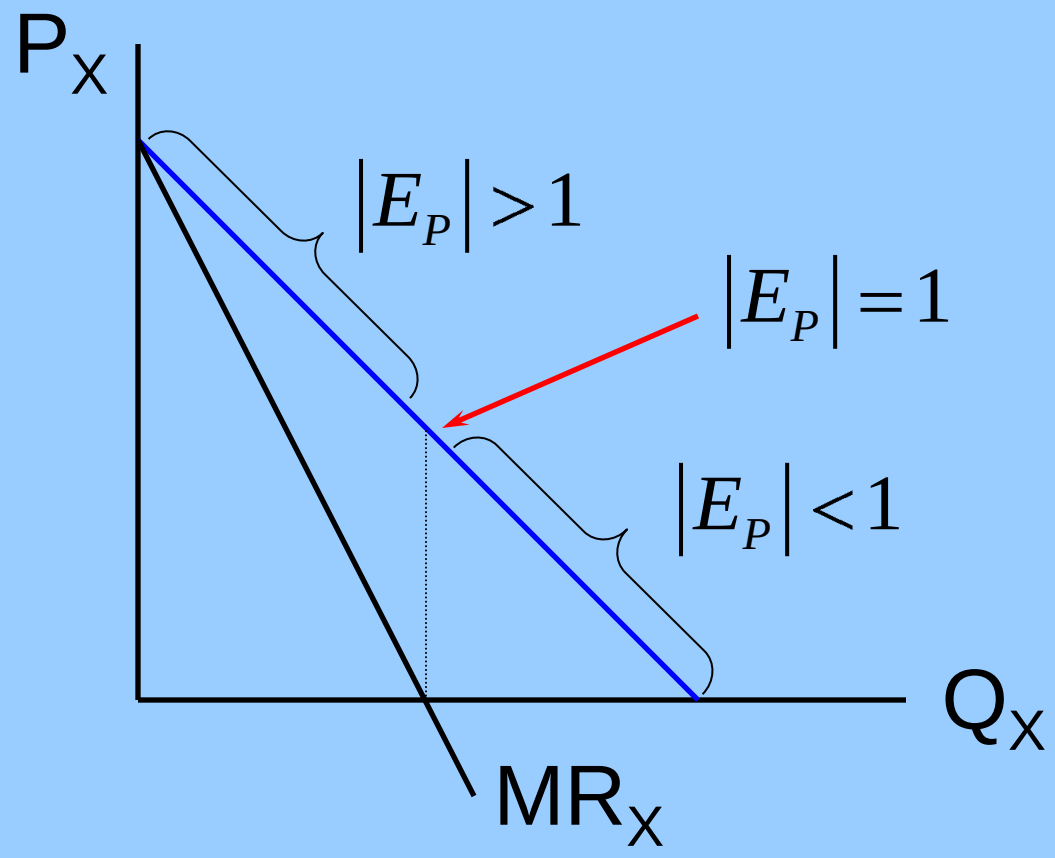
Price Elasticity of Demand

Arc Definition $$E_P = \frac{Q_2 - Q_1}{P_2 - P_1} \cdot \frac{P_2 + P_1}{Q_2 + Q_1}$$

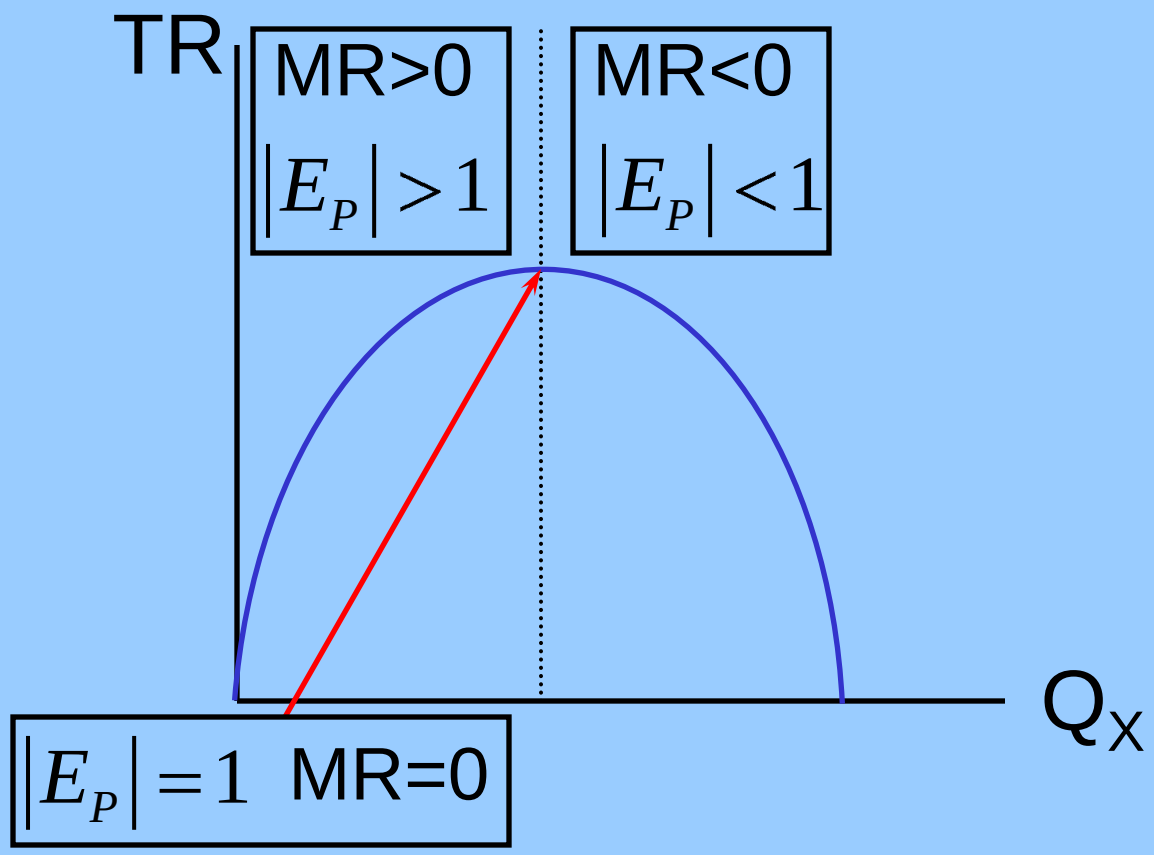
Marginal Revenue and Price Elasticity of Demand

$$MR = P\left(1 + \frac{1}{E_P}\right)$$

Marginal Revenue and Price Elasticity of Demand



Marginal Revenue, Total Revenue, and Price Elasticity



Determinants of Price Elasticity of Demand

Demand for a commodity will be more elastic if:

- It has many close substitutes
- It is narrowly defined
- More time is available to adjust to a price change

Determinants of Price Elasticity of Demand

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Income Elasticity of Demand

Point Definition $$E_I = \frac{\Delta Q / Q}{\Delta I / I} = \frac{\Delta Q}{\Delta I} \cdot \frac{I}{Q}$$

Linear Function $$E_I = a_3 \cdot \frac{I}{Q}$$

Income Elasticity of Demand

Arc Definition $$E_I = \frac{Q_2 - Q_1}{I_2 - I_1} \cdot \frac{I_2 + I_1}{Q_2 + Q_1}$$

Normal Good	Inferior Good
$E_I > 0$	$E_I < 0$

Cross-Price Elasticity of Demand

Point Definition

$$E_{XY} = \frac{\Delta Q_X / Q_X}{\Delta P_Y / P_Y} = \frac{\Delta Q_X}{\Delta P_Y} \cdot \frac{P_Y}{Q_X}$$

Linear Function

$$E_{XY} = a_4 \cdot \frac{P_Y}{Q_X}$$

Cross-Price Elasticity of Demand

Arc Definition $$E_{XY} = \frac{Q_{X2} - Q_{X1}}{P_{Y2} - P_{Y1}} \cdot \frac{P_{Y2} + P_{Y1}}{Q_{X2} + Q_{X1}}$$

Substitutes

$$E_{XY} > 0$$

Complements

$$E_{XY} < 0$$

Other Factors Related to Demand Theory

- International Convergence of Tastes
  - Globalization of Markets
  - Influence of International Preferences on Market Demand
- Growth of Electronic Commerce
  - Cost of Sales
  - Supply Chains and Logistics
  - Customer Relationship Management

