

BOOK 2 FORMULAE

Price Elasticity of Demand

$$E_p = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in price}} = \frac{\% \Delta Q_d}{\% \Delta P} = \frac{\frac{(Q_0 - Q_1)}{(Q_0 + Q_1)/2} \times 100}{\frac{(P_0 - P_1)}{(P_0 + P_1)/2} \times 100}$$

Cross Elasticity of Demand

$$E_c = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in price of substitute or complement}}$$

Income Elasticity of Demand

$$E_i = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in income}}$$

Elasticity of Supply

$$E_s = \frac{\% \text{ change in quantity supplied}}{\% \text{ change in price}}$$

Economic Profit

Economic profit = Total revenue - (Explicit costs + Implicit costs)

Unemployment Rate

$$\text{Unemployment rate} = \frac{\text{Number of people unemployed}}{\text{Labor force}} \times 100$$

where:

Labor force = Number of people unemployed + Number of people employed.

Labor Force Participation Rate

$$\text{Labor force participation rate} = \frac{\text{Labor force}}{\text{Working-age population}} \times 100$$

Employment-to-Population Ratio

$$\text{Employment-to-population ratio} = \frac{\text{Number of people employed}}{\text{Working-age population}} \times 100$$

Consumer Price Index

$$\text{CPI} = \frac{\text{Cost of CPI basket at current prices}}{\text{Cost of CPI basket at base prices}} \times 100$$

Inflation Rate

$$\text{Inflation Rate} = \frac{\text{Current CPI} - \text{Last year's CPI}}{\text{Last year's CPI}} \times 100$$

Required Reserve Ratio

$$\text{Required reserve ratio} = \text{Required reserves} / \text{Total deposits}$$

Desired Reserve Ratio

$$\text{Desired reserve ratio} = \text{Desired reserves} / \text{Total deposits}$$

Cash Drain Ratio

$$\text{Cash drain ratio} = \frac{\text{Currency}}{\text{Deposits}}$$

Money Multiplier

$$\text{Money multiplier} = \frac{\text{total change in quantity of money}}{\text{change in monetary base}} = \frac{1 + c}{r + c}$$

Where:

r = required reserve ratio

c = currency drain ratio

Quantity Theory of Money

$$MV = PY$$

The Equation of Exchange in Terms of Growth Rates

$$\text{Money growth rate} + \text{Velocity growth rate} = \text{Inflation rate} + \text{Real GDP growth rate.}$$