

## Examrace

# Economic Models and Real Numbers YouTube Lecture Handouts Part 1

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### Economic Models

- Economic theory is an abstraction from real world
- Economic model – deliberately simplified analytical framework – just a theoretical framework
- Mathematical model – includes set of equations

### Variables, Constants and Parameters

- Variable – magnitude can change – profit, revenue, cost, national income, consumption, investment
- Endogenous variables – solution values we seek from the model (market clearing value of price or profit maximizing level of output)
- Exogenous variables – variables determined by forces external to model
- Tea and coffee (price of substitute) and price of complement (sugar) – preference and number of buyers (exogenous)
- Analysis of market determination of wheat price (variable price is endogenous) but it is exogenous to theory of consumer expenditure
- Constant – antithesis of variable and does not change
- Constant with variable is known as coefficient of variable
- Parameters – resemble exogenous variables (include in model) – like gasoline in demand of automobile included in model

### Equations and Identities

- Definitional Equations –
- Behavioral Equation -
- Equilibrium constant -
  - Definitional Equation – identity between two alternate expressions that have the exact same meaning  $\text{profit} = \text{revenue} - \text{cost}$

- Behavioral equation – variable behaves in response to changes in other variables
- $C = 75 + 10Q$  or  $C = 110 + Q^2$  Equilibrium constant – model requires a prerequisite for attainment of equilibrium  $Q_d = Q_s$  (demand = supply) – equation of market; saving = investment (equation of national income model)

## Real Numbers

- Real – rational and irrational (non repeating and non terminating like  $\pi = 3.1415$ )
- Rational numbers include integers and fractions ( $p/q$  where  $q$  not equal to 0)
- Only real numbers are continuous

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