Unit 3: Economic Models and Graphical Analysis

Prepared for Kotebe University of Education

Department of Economics

Learning Objectives

- - Explain the structure and assumptions of demand and supply models.

- - Analyze market equilibrium and the effects of changes in demand and supply.

- - Apply comparative statics to assess the impact of external shocks.

- - Represent and interpret economic relationships graphically.

1. Demand and Supply Models

- - Economic models simplify real-world markets.

- - Demand Curve: $Qd = a - bP$

- * Law of Demand: Price ↑ → Quantity Demanded ↓

- - Supply Curve: $Qs = c + dP$

- * Law of Supply: Price ↑ → Quantity Supplied ↑

- - Graph: Downward D-curve, upward S-curve; intersection = Equilibrium (E).

2. Equilibrium Analysis

- - Equilibrium: Qd = Qs

- - Example: Qd = 100 − 5P, Qs = 20 + 3P → P_e = 10, Q_e = 50.

- - Market Adjustment:

- * Price > P_e → Surplus → Price falls.

- * Price < P_e → Shortage → Price rises.

- - Graph: Mark surplus, shortage, and arrows showing adjustment.

3. Comparative Statics

- - Studies how shifts affect equilibrium.
- - Shift in Demand → D → D_1 → Higher price & quantity.
- - Shift in Supply → S → S_1 → Lower price & higher quantity.
- - Both Shift Scenarios:
- * Increase in D & S.
- * Increase in D & Decrease in S.
- * Decrease in D & S.
- * Decrease in D & Increase in S.

4. Graphical Representation of Economic Relationships

- - Positive (Direct) Relationship: Both variables ↑.
- - Negative (Inverse) Relationship: One ↑, other ↓.
- - Nonlinear: Changes at different rates.
- - Applications:
- * Total Revenue vs Price (Inverted-U).
- * Production Function (Increasing, then diminishing returns).
- * Cost Curves (U-shaped).

Summary

- - Demand & Supply explain prices and quantities.

- - Equilibrium shows market balance.

- - Comparative Statics shows effects of external shocks.

- - Graphs make relationships intuitive.

Conclusion

- Economic models and graphical analysis are essential tools for interpreting, predicting, and communicating market behavior.