14.03 Lecture Notes Outline

NOTE: This outline is intended to help you study. However, anything which I covered in class or which appeared on the problem sets, or in the corresponding readings, is fair game for the midterm (use the lectures and problem sets as a guide to the level of detail which is expected from the readings). Some things were emphasized in more detail in the problem sets than in lecture.

Week 1

1. Introduction, Overview, and Tools

1.1. Overview of the Course, Review of Supply and Demand

1.1.1. Course Outline

1.1.2. Motivation
- a) Economics and Resource Allocation
- b) What are the effects of government intervention in the economy, and how can we evaluate public policy proposals?

1.1.3. Questions...
- a) Positive: What does the theory predict?
- b) Normative: Which allocations are better?
- c) Empirical issues

1.1.4. Formal economic models

1.1.5. Review Supply and Demand

1.1.6. Application: Minimum Wage

Freeman, Richard, "Comment: Review Symposium on *Myth and Measurement: The New Economics of the Minimum Wage*," *Industrial and Labor Relations Review* 48 (4) July 1995.

Kennan, John, "The Elusive Effects of Minimum Wages," *Journal of Economic Literature* 33 (December 1995), 1950-1965.

- a) Background
- b) Theoretical issues
- c) Empirical issues
  - (1) Identification of structural models
  - (2) Natural Experiments
- d) Findings
- e) Criticisms

1.2. Mathematical tools

1.2.1. Single variable optimization

1.2.2. Multivariate optimization

1.2.3. The implicit function theorem and comparative statics

1.2.4. Increasing differences

1.2.5. The envelope theorem

1.2.6. Constrained optimization

Week 2

2. Choice and the Theory of Demand

2.1. Rationality Axioms, Utility, and Indifference Curves; Constrained Utility Maximization

2.1.1. Axioms: Completeness, Consistency, Transitivity, Monotonicity, Continuity

2.1.2. Indifference Curves

2.1.3. Marginal Rate of Substitution (Diminishing MRS)

2.1.4. Budget Constraints and Utility Maximization

2.2. Individual Demand, Income and Substitution Effects

2.2.1. Deriving Consumer demand from utility maximization

2.2.2. Homogeneity of Degree 0

2.2.3. Comparative Statics on Income Changes

2.2.4. Comparative Statics on Price Changes

2.2.5. Duality

2.2.6. Deriving the Slutsky Equation

2.2.7. Application: Giffen goods and Irish Potatoes

Dwyer, G.P. and C.M. Lindsey, "Robert Giffen and the Irish Potato," American Economic Review (March 1984): 188-192.

Weeks 3 and 4

2.2.8. Review of Duality

2.2.9. Revealed Preference

a) Definition: "A is revealed preferred to B."

b) WARP, SARP

c) Application: Taxes and Rebates

d) Application: Price Indices

(1) Laspeyres v. Paasche

(2) Ideal price index

(3) Sources of Bias

Boskin, Michael, et al, "Toward a More Accurate Measure of the Cost of Living," Interim Report to the Senate Finance Committee from the Advisory Commission to Study the Consumer Price Index, September 15, 1995.

Business Week: Dornbusch and Kuttner columns.

2.2.10. Consumer Surplus

2.2.11. Application: Lump-Sum v. In-Kind Transfers

2.2.12. Demand Relationships Between Goods

a) Net Substitutes and Complements

b) Gross Substitutes and Complements
c) Composite Commodities

2.3. Market Demand and Elasticities

2.3.1. Income and Price Elasticity

2.3.2. Cross-Price Elasticities

2.3.3. Application: Demand for Abortions

a) How does abortion rate change with price, income, and medicaid funding?
b) Criticisms
c) Issues in empirically identifying demand curves.

2.3.4. Application: Effects of abortion restrictions

a) Effect on abortion rate v. effect on birth rate
b) Policy changes *both* abortion rate and number of pregnancies, so effect of restrictions is ambigous.
c) Some empirical evidence that small decreases in abortion access lead to lower birth rates.

Week 5

3. Production and Supply

3.1. Producer v. Consumer Theory

3.2. Production Functions

3.2.1. Returns to Scale

3.2.2. Isoquants and Rate of Technical Substitution

3.3. Production Costs and Cost Minimization

3.3.1. Labor and Capital Costs

3.3.2. Two step approach: fix quantity and minimize costs, then maximize over quantity.

3.3.3. Duality revisited

3.3.4. Expansion Path

3.4. Long Run Cost Curves

3.5. Short Run Costs

3.5.1. Relationships between long and short run curves, marginal and average cost curves

3.6. Profit Maximization, Short and Long Run Supply

3.6.1. Profit Maximization

3.6.2. Total Revenue and Marginal Revenue

3.6.3. Marginal Revenue and Elasticity

3.6.4. Short Run Supply

3.7. Organizations and Alternative Models of the Firm

3.7.1. Issues in Organization

a) Incentives, the free rider problem, and difficulties in providing correct incentives.

b) Information and Coordination

c) Complementarities

Milgrom, Paul, and John Roberts, *Economics, Organizations, and Management* Prentice Hall: 1992, Chapter 1.

Week 6

3.7.2. The Formal Analysis of Complementarities

a) Formal definition of (Edgeworth) complements

b) Comparative Statics

c) Predictions for Organizations

3.7.3. Application: Modern Manufacturing

Milgrom, Paul, and John Roberts, “The Economics of Modern Manufacturing: Strategy, Structure, and Organizational Change,” American Economic Review 1990.