Intermediate Microeconomic Theory

Tools and Step-by-Step Examples

Chapter 1: Introduction

What is Microeconomics?

- Microeconomics seeks to understand "individual" behavior.
  - *Consumers.* Purchasing decisions.
    - *If your favorite singer is coming to town, would you buy one ticket at price $\$45$?*
  - *Firms.* Input decisions.
    - *How many workers to hire and computer to purchase?*
  - *Regulators.* Public officials can anticipate how firms and consumers behave in different markets.
    - *Can some policy tools, such as taxes or quotas on consumers or firms, be beneficial?*

What is Microeconomics?

- The behavior of economic agents is investigated under the assumption of *rationality*:
  - Each agent seeks to maximize her payoff (i.e., utility of the consumer, or profits for the firm), given her resources, and the information to which she has access.
- Two contexts:
  - When an agent seeks to maximize her own material payoff.
  - When she maximizes a combination of her own and other agents' payoffs (allowing her to be selfish or altruistic).

Comparative Statics

- "Comparative statics", to measure how an individual's behavior changes when one, and only one, variable varies (e.g., the price of the item).
  - *If your favorite singer is coming to town, would you buy one ticket at price* $\$45$*?*
    - Yes
  - *Would you make a different choice if the ticket price increases to* $\$55$*?*

Overview of the Book

- Consumer Theory (*chapters 2-6*)
  - **Chapter 2:** A model to represent a consumer.
    - Notion of consumption bundle (i.e., a list of goods and services).
    - How a consumer's preferences rank different bundles.
    - How to represent these preferences in a utility function, measuring the consumer's well-being from each bundle.
    - Properties that utility functions can satisfy.

Overview of the Book

- Consumer Theory (*chapters 2-6*)
  - **Chapter 3:** The consumer's optimal purchasing decision.
    - Budget constraints, which are dictated by good prices and available income.
    - Consumer's purchasing decision ("demand" for a good):
      - Buy the bundle that increases my utility as much as possible but … without breaking the bank!

Overview of the Book

- Consumer Theory (*chapters 2-6*)
  - **Chapter 4:** Changes in a consumer's demand for a good.
    - When her income increases by a small amount.
      - After winning the lotto, you may increase purchases for most goods (e.g., a nicer car), and yet may decrease purchases of some goods (e.g., fast food).
    - When the price of the good experiences a small increase.

Overview of the Book

- Consumer Theory (*chapters 2-6*)
  - **Chapter 5:** Welfare loss due to a price increase.
    - Three measures to evaluate this welfare loss:
      - Change in consumer surplus.
      - Compensating variation.
      - Equivalent variation.
    - Similarities and differences, and applications to different contexts.

Overview of the Book

- Consumer Theory (*chapters 2-6*)
  - **Chapter 6:** Choice under uncertainty.
    - Situations where the consumer faces uncertainty about some elements that affect her utility.
      - E.g., Accept a job paying $\$60,000$/year with certainty ($100\%$ probability), or work for a star-up company that will pay $\$95,000$ if it makes it to the New York Stock Exchange (30% probability) or $\$15,000$ if it does not (70% probability).
    - "Expected utility".
    - Risk attitudes.
    - Measures of risk aversion.

Overview of the Book

- Production Theory (*chapters 7-8*)
  - **Chapter 7:** The firm's optimal production decision.
    - Use of inputs (how many workers to hire or machines to purchase).
    - Technological constraints, indicating the output levels the firm can produce given its technology.

Overview of the Book

- Production Theory (*chapters 7-8*)
  - **Chapter 8:** The firm's costs from its output decision.
    - Units of each input that the firm hires.
    - Average cost (i.e., cost per unit of output).
    - Marginal cost (i.e., increase in cost when the firm increases its output by one unit).
    - How the firm's average cost is affected when:
      - Its scale expands (economies of scale).
      - It offers more product lines (economies of scope).

Overview of the Book

- Markets (*chapters 9-11*)
  - **Chapter 9:** Perfectly competitive market.
    - Many firms, each producing a small share of industry output.
    - Firms are "price takers." When choosing to produce a larger output, every firm can anticipate that is decision will not affect market prices.

Overview of the Book

- Markets (*chapters 9-11*)
  - **Chapter 10:** Monopoly.
    - A single firm operates choosing the optimal output to maximize profits.
    - The monopolist is a “price setter.” His output decision uniquely determines market price.
    - Multiplant monopolies, a firm is the only seller of a product, which is made at two or more plants.
    - Welfare loss under a monopolized industry.

Overview of the Book

- Markets (*chapters 9-11*)
  - **Chapter 11:** Price discrimination.
    - Monopolists can further increase their profits.
    - Three forms of price discrimination, charging different prices to different consumers.
    - Advertising, which makes the firm’s product known to a larger pool of customers.
    - Bundling, the firm offers customers a “bundle product” (e.g., PC tower and monitor).

Overview of the Book

- Strategy–Let's Play Games (*chapters 12-13*)
  - **Chapter 12-13:** Game Theory.
    - The branch of economics studying strategic behavior.
    - Interactions among "players" (firms, consumers, or governments), when the action of one player affects the payoffs of other players.
    - Games in which all players (e.g., firms) choose their actions (e.g., output levels) simultaneously (chapter 12).
    - Games in which player act sequentially (chapter 13).
    - "Equilibrium behavior" (how player behave) in each game.

Overview of the Book

- Putting Game Theory to Work (*chapters 14-15*)
  - **Chapter 14:** Imperfectly competitive markets.
    - Application of game theory tools to industries with a limited number of firms.
    - Markets in which firms simultaneously choose their actions, either competing in price or quantity.
    - Industries where firms act sequentially.
    - Settings where firms sell products that consumers regards as close (but not perfect) substitutes.

Overview of the Book

- Putting Game Theory to Work (*chapters 14-15*)
  - **Chapter 15:** Incomplete information.
    - Contexts where one player has more information than its rivals.
    - A firm observing its production cost, but its rivals cannot perfectly observe it.
    - Auctions, where each bidder knows how much she is willing to pay for an object but she does not know how much other bidders are willing to pay.
      - First-price, second-price, and all-pay auction formats.
      - Optimal bidding strategy (i.e., how much money you should bid).

Overview of the Book

- More Market Failures–When Markets Work Well and When They Don't (*chapters 16-17*)
  - **Chapter 16:** Contracts.
    - One party is better informed that the other.

Overview of the Book

- More Market Failures–When Markets Work Well and When They Don't (*chapters 16-17*)
  - **Chapter 17:** Externalities and public goods.
    - Situations where actions of one agent produce external effects on another agent's well-being.
    - Sustainability issues in common-pool resources (e.g., fishing ground).
      - In the short-run, when agents ignore the long-term effects, they may exploit the resource intensively.
      - When considering long-run effects, their optimal behavior dictates a less intense exploitation.