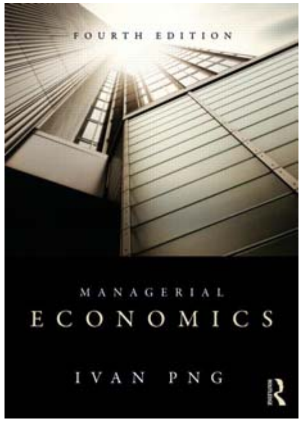


Chapter 1
Introduction to Managerial Economics

Commercial jets market

- A metaphor for many industries
  - Global market
  - Growth in demand
  - New competitors from BRIC

- Large commercial jet markets
  - E.g, Boeing 747 vs Airbus 380
  - A standard duopoly market: Boeing vs Air Bus

Medium-size commercial jets: Boeing and Airbus

- Medium-size commercial jets; e.g, Boeing 737 and Airbus A320
- “The days of the duopoly with Airbus are over.” Jim Albaugh, CEO, Boeing Commercial Airplanes, June 2011
- Many new competitors in medium-size commercial jets market
  - COMAC (China), C-919
  - Bombardier (Canada), CSeries
  - Irkut (Russia), MC-21
  - Embraer (Brasil), ??

Questions of interests

- Boeing
  - How should it respond to the new entry?
    - Launch new product
    - Modify its existing plane?
  - Why expand production of the 737?
- Airbus
  - Why launch new version of the A320 rather than totally new plane?

Managerial economics

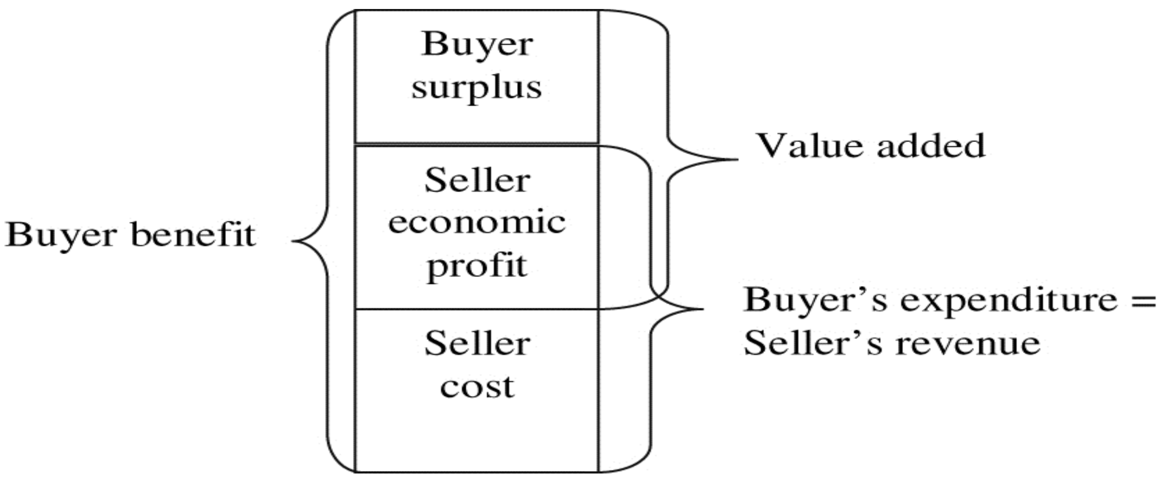
- Definition: Science of cost-effective management of scarce resources
- Managers face various decision-making problems: regarding customers, suppliers, or competitors.
- Develop tools of quantitative and qualitative analysis for decision-making in situations of scarce resources, competition, and imperfect markets.
- Appreciate when and how to apply these tools for better management.

Some background and concepts related to managerial economics

- **<u>Value added</u>**
- Decision-making
- Timing
- Organization
- Markets
- Globalization

Value added

- Value added = Buyer benefit – Seller cost
- Buyer and seller share the value added
  - Buyer surplus
  - Seller economic profit



Value added

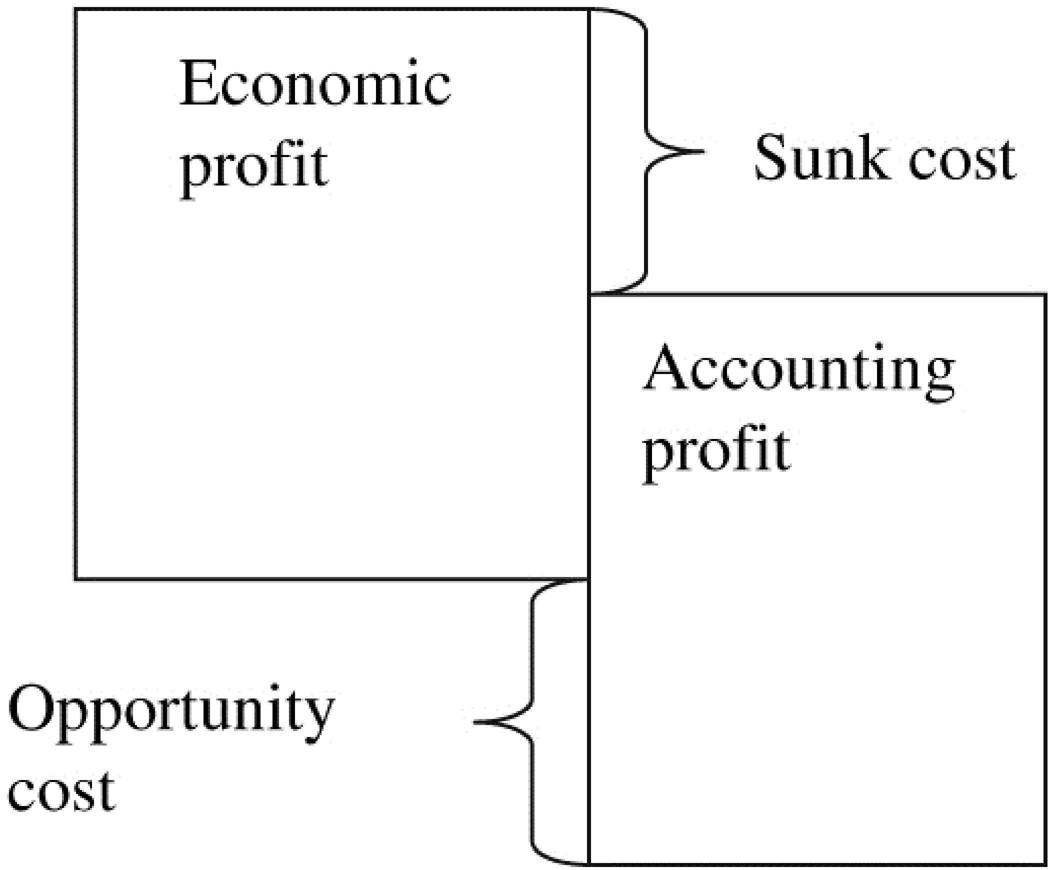
- Economic profit =

  Accounting profit – Opportunity cost + Sunk cost

- Opportunity cost: what must be foregone from the best alternative course of action

- Sunk cost: the cost that has been committed and can not be avoided
  - Not relevant to business decision making
  - E.g., R&D spending, advertising

Value added


Economic profit
Sunk cost
Accounting profit
Opportunity cost

Value added: Luna Biotech

- Luna has spent 6 million on R&D
- Two ways of arriving at correct decision: continue R&D, buy drug

$ million	Continue R&D	Buy drug
Profit contribution	20	20
R&D expenditure	10	6
Acquisition cost		2
Profit (accounting)	10	12

Value added: Luna Biotech

- Continuing R&D:
  - Accounting profit =$10
  - Opportunity cost: $20 - $2 = $18 million
  - Sunk cost: $6 million
  - Economic profit = $10 - $18 + $6 = -$2 million

- Continuing R&D is the worse choice

Some background and concepts related to managerial economics

- Value added
- **<u>Decision-making</u>**
- Timing
- Organization
- Markets
- Globalization

Decision-making

- Two fundamental decisions in business: participation (which) and extent (how much)
- Participation: Which?
  - Which market, price, product, R&D path
  - Total benefit / total cost
- Extent: How much?
  - Marginal benefit / marginal cost
  - Marginal = change in variable due to unit increase

Decision-making: Nancy's investment

- Returns
  - Savings account: 2% for any amount
  - Fund: 3% for units of $10,000
- To invest
  - Lump sum of $10,000: Compare total return => fund
  - Gift of $1,000: Compare marginal return => savings account

Decision-making

- Bounded rationality: people do not always behave rationally
  - They may have systematic errors in decisions

- Bounded rationality leads to biases in decision-making

Decision-making

- Sunk cost fallacy:
  - Consumers incurred a larger sunk cost tend to consume more
  - Over-consumption due to “mental lock-in”
  - E.g., membership fees
- Status quo bias: decision makers tend to prefer the status quo

- Anchoring: Influence of irrelevant information
  - E.g., high list price and high discount

Some background and concepts related to managerial economics

- Value added and economic profit
- Decision-making
- **<u>Timing</u>**
- Organization
- Markets
- Globalization

Timing

- Two types of models :
  - Static model – single point in time
  - Dynamic model – focus on sequence of actions and payments

Timing

- Discounting
  - Value of dollar in future < value of dollar today
  - Discount rate = exchange rate between future money and current money
- Net present value = sum of the discounted values of inflows and outflows over time
  - Current value of various flows of dollars over time

Timing: Max's decision on MBA

- Continue in current job:

$$\$30{,}000+\frac{\$30{,}000}{1.08}+\frac{\$30{,}000}{1.08^2}+\frac{\$30{,}000}{1.08^3}+\frac{\$30{,}000}{1.08^4}=\$129{,}364$$

- Study for MBA and upgrade job

$$-\$50{,}000-\frac{\$50{,}000}{1.08}+\frac{\$95{,}000}{1.08^2}+\frac{\$95{,}000}{1.08^3}+\frac{\$95{,}000}{1.08^4}=\$130{,}393$$

Some background and concepts related to managerial economics

- Value added and economic profit
- Decision-making
- Timing
- **<u>Organization</u>**
- Markets
- Globalization

Organization: Objectives

- Businesses: maximize profit
- Government and non-profit organizations: maximize social welfare
- Household: maximize family welfare

Organization: Boundaries

- The activities of an organization are subject to organization boundaries.
- Vertical boundaries – describe activities closer to or further from end users.
- Samsung Electronics – vertical boundaries longer than
  - Intel – specializes in semiconductors (upstream)
  - Nokia – specializes in mobile phones (downstream)

Organization: Boundaries

- Horizontal boundaries – defined by the scale and scope of organization's operations.
  - Samsung Electronics: horizontal boundaries broader than LG.Philips LCD – specializes in LCD
  - Bank of America (commercial + investment banking): horizontal boundaries broader than Goldman Sachs (mostly investment banking)

Some background and concepts related to managerial economics

- Value added and economic profit
- Decision-making
- Timing
- Organization
- **Markets**
- Globalization

Market

- Market: Buyers and sellers communicate with one another for voluntary exchange
- Market need not be physical
  - E.g., market for cotton, corn
- Industry – businesses engaged in the production or delivery of the same or similar items

Competitive market

- Benchmark for managerial economics
  - Extremely competitive market
    - many buyers and many sellers
    - no room for managerial strategizing
  - Achieves economic efficiency

Competitive market

- Model
  - Demand from buyers
  - Supply from sellers
  - market equilibrium

Market power

- Definition – ability of a buyer or seller to influence market conditions
- Buyer/seller with market power can/must manage
  - Costs
  - Pricing
  - Advertising expenditure
  - R&D expenditure
  - Production capacity

Imperfect market

- Definition: where
  - One party directly conveys a benefit or cost to others (externalities), or
  - One party has better information than others (asymmetric information)

Some background and concepts related to managerial economics

- Value added and economic profit
- Decision-making
- Timing
- Organization
- Markets
- **<u>Globalization</u>**

Globalization: Why?

- Why some markets are global?
  - Low transportation cost.
    - E.g, commodities, financial services
    - Housing markets are local

  - Low telecommunications cost
    - Deregulation, scale economies in bandwidth

Globalization: Why?

- Growth of cross-border trade and investment
  - falling trade barriers
  - falling financial barriers
  - falling communications costs

Globalization: Trade system

- World Trade Organization
- Regional free trade areas
  - European Union
  - North American Free Trade Agreement
  - ASEAN
  - ASEAN-China, ASEAN-India

Key takeaways

- Managerial economics is the science of cost-effective management of scarce resources.
- Value added is the difference between buyer benefit and seller cost, and comprises buyer surplus and seller economic profit.
- Economic profit is accounting profit less opportunity cost plus sunk cost.
- In decisions on participation, compare the total benefit and total cost.
- In decisions on extent, compare the marginal benefit and marginal cost.
- In decision-making, take care to avoid systematic biases including the sunk-cost fallacy, status quo bias, and anchoring.

Key takeaways, cont'd

- When evaluating benefits and costs that flow over time, use net present value with the appropriate discount rate.
- The vertical boundaries of an organization delineate activities closer to or further from the end user.
- The horizontal boundaries of an organization are defined by the scale and scope of operations.
- Businesses with market power must manage their costs, pricing, advertising, and relations with competitors.
- Businesses in imperfect markets should act strategically to resolve the imperfection.