

Industrial organization:

How do firms compete in imperfect competition?

- (1) Interactions between firms
 - (2) Info
 - (3) Externalities
 - (4) Public policy
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Game theory: study of strategic decisions between agents

- (1) Interactions between players
 - (2) Order of movers
 - (3) Information
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Behavioral econ: integrate psychology & economics

- (1) Framing effects (how we present a choice)
 - (2) Bounded rationality (take into account info we want)
 - (3) Heuristics: Mental shortcuts
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2.2 Consumer Theory and Demand

Introductory model

$$(q_1, q_2, \text{Tastes \& income}) \\ \square \quad \square \\ \text{Individual utility} = U(\text{Goods}, t, m)$$

The steepness of the demand curve comes from the combination of substitution and income effects.

Demand curve has three qualities:

- (1) Price intercept (a)
 - (2) Quantity intercept $\frac{a}{b}$
 - (3) Slope (b)
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All other determinants are demand shifters:

- (1) Price of other goods (p₂)
 - (2) Income (m)
 - (3) Tastes (t)
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Relationship between goods and income:

- (1) **Normal:** Higher income -> Higher Demand
 - (2) **Inferior:** Higher income -> Lower Demand
 - (3) **Income Neutral:** Higher income -> Same Demand
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Nonfunctional demand: motivated by qualities other than inherent characteristics

- (1) Interdependent - based on other people
 - (a) Bandwagon effect - purchase because others purchased
 - (b) Snob effect - purchase to be different than others
 - (c) Veblen / conspicuous consumption effect - purchase to impress, expensive
- (2) Speculative - purchase as an investment

(3) Irrational - purchase on a whim

2.3 Technology and Costs (Multiple Products)

W_L = Price of labor

W_K = Price of capital

q_1 = Quantity of good 1

q_2 = Quantity of good 2

T = Technology

W_L, W_K, q_1, q_2

Total Cost = $TC(\square, \square, T)$

We will see **economies of scale** when the long run average cost falls as output increases.

As long as the average cost is less than the marginal cost, we should keep producing.

Minimum efficient scale - Minimum quantity produced to take advantage of economies of scale.

$$AC = \frac{100 - \frac{20Q + Q^2}{4\alpha}}{4\alpha}$$

Minimize this
 \square Parameter (Larger = flatter parabola)
 \square

$$MC = \frac{100 - 40Q + 3Q^2 + 40\alpha}{4\alpha}$$

At the quantity where AC is minimized, $AC = MC$.

There is **economies of scope** if joint production by a single firm is cheaper than production by two separate firms.

Why?

- (1) Complements in production (using by-products of each other)
- (2) Share common inputs (railroads transporting passengers and freight)

2.4 Theory of the Firm: "The goal of the firm is to maximize profits."

Economic profits = total revenue - economic costs

Value of an asset = PV of the stream of its expected future returns

Issue: Firms look to maximize in the long run, not just right now

Solution: Discounting

β = Discount factor (PV of 1 dollar received next period, scale from 0 to 1)

$\beta = .9$ represents 90 cents today equaling 1 dollar tomorrow

$Value(\pi, \infty) = \beta^0 \pi + \beta^1 \pi + \dots + \beta^n \pi$

$$Value(\pi, \infty) = \frac{\pi}{1-\beta}$$

Discounting Example

So, the PV of receiving 1 dollar every day when we value 90c today as 1 USD tomorrow is 10 dollars

$D = .9$

$\pi = 1$ dollar

$$Value = \frac{\pi}{1-\beta} = \frac{1}{1-0.9} = 10$$

This helps us see how much profit we will be willing to give up today in exchange for additional profit in the future. A higher β implies that a greater value is placed on the future.

Another issue:

Principle-agent problem - managers and employees look to maximize their own utility (income, prestige, other psychological factors)

2.4 Boundaries of the firm

Why set up a firm?

- (1) Horizontal growth - provides greater economies of scale (merger in same industry)
- (2) Conglomerate growth - provides greater economies of scope (merger in different industries)
- (3) Reduces transaction costs (costs associated with trading)
- (4) Vertical growth - buying up the supply chain

Forces that limit size of firm:

- (1) Merger with a supplier reduces the suppliers flexibility and control -> market inefficiencies
- (2) The supplier may be too large to be profitably owned by a single wholesaler
- (3) Managerial capacity - costs grow as firm grows

Costs can be broken down into 2 groups:

- (1) Those that decline as the org grows (eg transaction costs)
- (2) Those that grow as the org grows (eg managerial costs)

$$TC = C_{MGT} + C_{MKT}$$