Industrial organization:

How do firms compete in imperfect competition?
(1) Interactions between firms
(2) Info
(3) Externalities
(4) Public policy

Game theory: study of strategic decisions between agents
(1) Interactions between players
(2) Order of movers
(3) Information

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

2.2 Consumer Theory and Demand

Introductory model

$Individual \: utility = U\underbrace{(q1,\:\:q2,\:\:}_{\text{Goods}} \overbrace{t, \:\:\: m)}^{\text{Tastes & income}} $

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)

All other determinants are demand shifters:

(1) Price of other goods (p2)
(2) Income (m)
(3) Tastes (t)

Relationship between goods and income:

(1) **Normal:** Higher income -> Higher Demand
(2) **Inferior:** Higher income -> Lower Demand
(3) **Income Neutral:** Higher income -> Same Demand

Nonfunctional demand: motivated by qualities other than inherent characteristics

(1) Interdependent - based on other people
$\quad$ (a) Bandwagon effect - purchase because others purchased
$\quad$ (b) Snob effect - purchase to be different than others
$\quad$ (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)

$W_{L} = Price\:of\:labor$
$W_{K} = Price\:of\:capital$
$q1 = Quantity\: of\: good\: 1$
$q2 = Quantity\: of\: good\: 2$
$T = Technology$

$ Total\:Cost = TC\: (\underbrace{W_{L}, \: W_{K}},\underbrace{ \: q1, \: q2}, \: 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 - Mimimum quantity produced to take advantage of economies of scale.

$ AC=\frac{100\quad-\quad\overbrace{20Q + Q^2}^{\text{Minimize this}} \qquad + \overbrace{40\alpha}^{\text{Parameter (Larger = flatter parabola)}}}{4\alpha} $

$ 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 seperate 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

$\beta = Discount\: factor\: (PV \: of\: 1 \:dollar\: recieved\: next\: period,\: scale\: from\: 0 \:to\: 1) $
$\quad \beta = .9 \: represents \: 90 \: cents \: today \: equaling \: 1 \: dollar \: tomorrow$

$ Value(\pi,\infty) = \beta^0 \pi + \beta^1 \pi + ... + \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
π = 1 dollar
$ Value = \frac{\pi}{1-\beta} = \frac{1}{1-.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} $