Microeconomics is social science and business tool. Creating economic value alone though is insufficient, it is necessary to *capture* that value.

0.1 Determine Prices

In competitive markets

Principles

1. no free lunch, we face trade-offs

2. opportunity cost is what matters

3. rational actors think at the *margin*

4. individuals react to *incentives*

Perfectly competitive market

- firms make selling decisions, taking the market price as given = market supply curve

- buyers make purchase decision taking the market price as iven = market demand curve

- equilibrium market price is reached $Q_{demanded} = Q_{supplied}$

Costs:

- fixed cost: cost that cannot be avoided in the short run

- variable cost: cost that can be avoided; they may vary continuously with output

- total cost: $\sum FC + VC$

- full-reinvestment total cost: $FC + VC + Annual_{CapitalCharge}$ fixed cost plus variable costs plus the annual capital charge: which

includes the yearly financing cost of building the company

- marginal cost: extra cost of producing one extra unit

Features of Marginal Cost Curve:

$$MC = RATE[TC \text{ and } TVC\delta]$$

$$MC = \frac{\partial TC}{\partial Q} = \frac{\partial TVC}{\partial Q}$$

Therefore, if TC is linear, MC is a horizontal line corresponding to slope of TC.

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for TVC is linear:
$MC = AVC == AVC = \frac{MC \cdot Q}{Q}$
Therefore, supply decision of an individual is either ZERO or FULL Capacity
This does not suggest breakeven: firms may operate at below ATC in the short-run

When ATC and FR-ATC are U-Shaped:

MC becomes a linear line (derivative of a parabolic function)
Short run equilibrium price is the intersection of MC with FR-ATC

Conditions for LR Equilibirum:

1. no incentive for new entry: so $P = MIN[FR - ATC]$

2. profit maximization by firms,

each firm produces Q

3. supply = demand

Demand collapse:
New equilib price falls below ATC. This forces firms to withdraw capacity until it reaches ATC. In the long run, if demand stays depressed, market forces will eliminate capacity from the industry when prices are stuck between $min[ATC]$ and $min[FR-ATC]$

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consumer suprlus = area between market price and demand curve

producer surplus = area between market price and supply curve

$$Economic_{value} = Surplus_C + Surplus_P$$

0.2 Government

Interventions

The economics of taxes:
A tax introduction shifts the supply curve leftward, cause a rise in price. However, this price lift is shared between the consumer and the producer - resulting in a dead-weight-loss of D and F. Session 5 - page 9.

Subsidies:
The US Cotton Subsidy shifted the entire USA supply to the left of the supply curve - thus lowering the entire equilibirum price of global cototn prices

Price Elasticity:

$$\epsilon = \frac{\frac{\partial Q_D}{\partial P}}{P/Q}$$

US Subsidies implications and thoughts:

1. tax cost to US taxpayers is far more than extra profit enjoyed by US producers

2. elimination of subsidies would increase earnings from growing cotton outside the US: the US foreign aid budget was much higher than this

3. subsidies reduce total world surplus

   (a) higher overall costs (crowding out in the market)

   (b) gain from extra consumption is not worth it!

So why have subsidies:

1. dispersed costs

2. concetrated benefit

3. lots of incentives to protect it, low incentives to kill it

0.3 Profix Maximization

Pricing decisions - for firms with market power: Basic principal is $Marginal_{revenue} = Marginal_{cost}$

The price I (a monopoly) should set is $P(Q) = Choke_{Price} - 2Q$
Thus, total revenue is $CP \cdot Q - 2Q^2$
Remember, that marginal revenue is $B - A$ where A is *dilution* and B is the actual revenue gained from selling one more unit.

MR is the slope of TR or $\frac{\partial TR}{\partial Q}$
More generally:

$$P = a - bQ \text{ implies } MR = a - 2bQ$$

Conclusion: the profit-max rule is: **Sell Q at the point which $MR = MC$**
Note: take a look at Session 7 Page 15
Extensions of this conclusion:

1. if $MR > MC$ we haven't gone far enough in production

2. if $MR < MC$ we have gone too far so we need to decrease Q

3. at $MR = MC$ we are at the point

of max profit

Remember: **Pricing to cover ATC is an example of the sunk cost fallacy**
An Equivalent to MR=MC:

$$LernerIndex == \frac{P - c}{P} = \frac{-1}{E_d}$$

Or Percentage mark-up is equal to the negative inverse of elasticity of demand

0.4 Oligopoly

Monopoly and duopoly markets

Welfare effects of Monopoly:

1. Monopolist choose to produce where $MR = MC$

2. monopoly leads to higher prices and lower consumption

3. this decreases consumer surplus

4. increases in profits do not compensate for the decrease in consumer surplace

5. this creates dead-weight-loss!

Let's customize prices:

- strong micro-market: higher WTP and less price sensitive

- weak micro-market: lower WTP and more price sensitive

- TOTAL market: sum of the micro-market demand curves

Conclusion: profit contribution of 1 and 2 is greater than simply 3 (single sweet spot price)

For uniform price: **Remember!** Invert, multiply, and differentiate, then set $MR = MC$ to find optimal Q

For optimal customized pricing: **Remember!** set $MR = MC$ in each micro-market

To see this: set the uniform price against two **different** elasticities in each micro-market and compute marginal revenue. As long as MR differs across markets, we can increase profits by customizing prices.

Cournot: The market price depends on the supply decisions of each firm
Key point: varying how much quantities supplied, firm can materially influence the market price Rection functions under Cournot:

1. start with the inverse demand curve

2. Rearrange the terms such that $P = [a - bQ_2] - cQ_1$

3. Solve for MR using partial to Q1 such that $MR = [a - bQ_2] - 2cQ_1$

4. solve for Q_1

A key takeaway for Cournot: **Cournot Equ is not efficient because its prices are lower than Monopoly prices, but higher than Perfect Competition Prices**

Bertrand: involves each firm charing a penny above its common MC

1. Expectations shape incentives and drive outcomes

2. If I lower my price by a pennty while my competition does not, I'll gain the increase in quantity solde, so I will do it

Differentiation

1. Vertical differentation - firm can charge a higher price for any given price choice of its competitors

2. horizontal differentation - weak horizontal suggests lots of switchers in total demand while strong

horizontal differentiation suggests mostly loyalists account for total demand

A key takeaway for Bertrand: **the price competition of two firms lead to efficient outcomes - it's a form of pure strategy under Nash Equ**

0.5 Game Theory

Simultaneous and Sequential - games model strategic interaction

Domination strategy - **if a player has one action that outperforms all his other actions no matter what the other players do** Rational players will always use dominant strategies:

for example

$$\Pi(Ad, Ad) > \Pi(NoAd, Ad)$$
$$\Pi(Ad, NoAd) > \Pi(NoAd, NoAd)$$

Nash Equ: **an action profile such that each player's action maximizes his payoff given the actions of other players**