

Introduction to Economics

- Scarcity: human desires for goods & services are unlimited but the resources & time are limited
- Economics: A social science that studies the choices people / organizations make to cope with Scarcity and the incentives of these choices
- Microecon: The study of the choices that individuals and businesses make, how they interact in the market, and gov't influence

Chap 1 : Parkin

(F.o.L)

- Factors of prod: Resources used to produce goods & services
 - Land: natural resources → rent
 - Labor: physical and mental effort of people → wages
 - Human capital: knowledge & skill of people used to produce resource
 - Capital: tools, instruments, machines, buildings used to produce → interest (lending them)
 - Not financial capital (money, stocks, bonds)
 - Entrepreneurship: The process of discovering new ways to combine resource → profit
- Efficiency: The resource use is efficient if it is not possible to make someone richer without making another poorer

Ex : Divide 5 apples to 2 people :

- 0, 5
- 1, 4
- ⋮
- 3, 2

Efficient

- 2, 2 and throw 1 away

→ One person can have 3 apples (richer) and the other stay the same (not poorer) → Inefficient

) Tradeoff : an exchange, giving up one thing to get something else

- A choice is a tradeoff

) Rationality : compare costs & benefits → achieve $\frac{\text{greatest benefit}}{\text{costs}}$

- Benefit : The gain / pleasure, determined by preference

- Cost : The thing that you have to give up

(OC)

) Opportunity Cost : The highest - valued alternative that is given up to get a thing is the opportunity cost of that thing

) Positive statement : fact, can be tested scientifically

Ex : Salary increases 30% compared to last year

) Normative statement : opinion / value, can't be tested scientifically

Ex : We should be lower

) Economic models : A description of some aspects of the economy which is needed for a purpose
→ Help economists conduct research and advise on gov and industry policy/

) Market capitalism : an econ system in which

- Individual owns resources and are free to buy/sell them (land, capital, good & services)
- Markets determine what, how, and for whom goods & services are produced
- No supreme planner guiding the use of resources

(g & s)

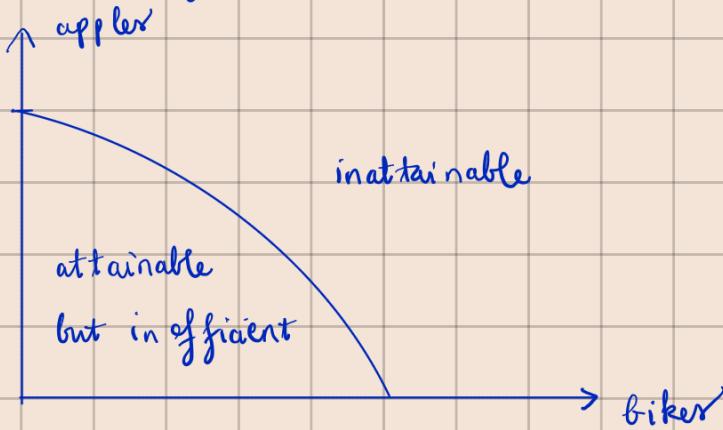
) Centrally planned socialism : an econ sys in which :

- Gov owns all resources, direct workers to jobs
- Gov decides what, how, and for whom to produce

⇒ We are in a mixed econ system

Chapter 2 : Introduction to PPF

) Production possibility frontier (PPF) : Production has trade off's



- Marginal Benefit: benefit from consuming 1 more unit
- Marginal Cost: cost from producing 1 more unit
- Economic growth: Expansion of the PPF

- Technological change
- Capital accumulation

PPF shiftors:

- Technological advance
- More education / training
- Natural disaster

(fewer input, same output) (compare to others)

Absolute advantage & Comparative advantage:

		chicken	waffle
1 hour			
Rachel	30	1h	30
Nick	30	1h	6
	0		60
	60		0

R has absolute advantage
in producing waffle

		chicken	waffle
Cost			
Rachel	1 w		1 c
Nick	$\frac{1}{5}$ w		5 c

Nick has comp advantage
in prod chicken over
Rachel

Rachel has comp

- Rachel's opportunity cost for chicken is 1 waffle
- Nick's opportunity cost for _____ is $\frac{1}{5}$ waffle

		A	B
P			
L	5	15	
M	10	20	

→	3 B	$\frac{1}{3} P$
	2 B	$\frac{1}{2} P$

DEMAND AND SUPPLY

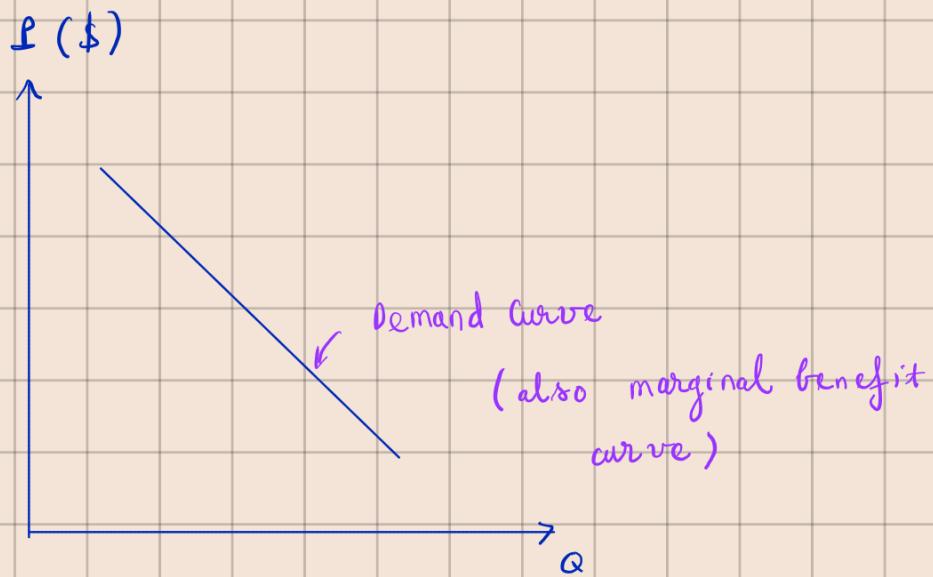
(D & S)

(P)

(Q)

-) Demand : relationship between price of a good and the quantity demanded

-) Demand Curve :



-) Market : where sellers & buyers interact to exchange goods & services

-) Money price : price in currency

-) Relative price : price in terms of other goods

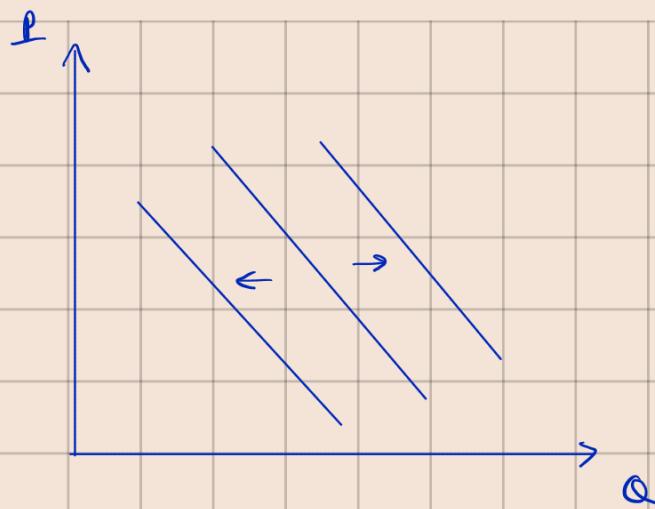


Used throughout this class

-) Law of D : $P \uparrow \rightarrow Q \downarrow$

-) Movement along the curve : Q changes because P changes

-) Change in Demand : D curve shifts



Demand Shifters :

- Preferences
- Income (I)
 - Normal good : $I \uparrow \rightarrow$ shift right
 - Inferior good : $I \uparrow \rightarrow$ shift left

- Expectation of Future (EoF)
 - Future price high \rightarrow shift right
 - _____ low \rightarrow _____ left

- Substitute & Complements
 - P of Sub $\uparrow \rightarrow$ shift right
 - P of Sub $\downarrow \rightarrow$ shift left
 - P of Com $\uparrow \rightarrow$ shift left
 - P of Com $\downarrow \rightarrow$ shift right

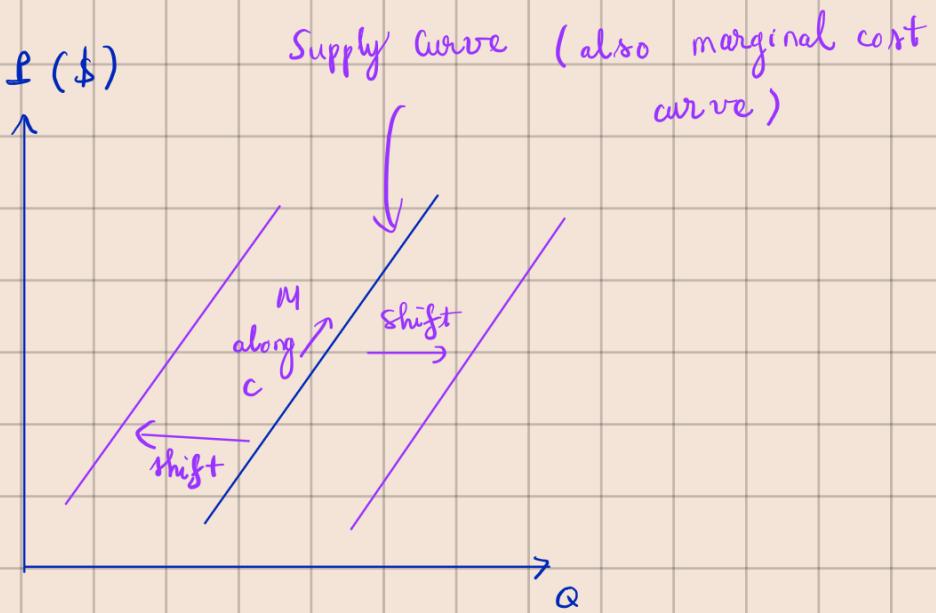
- # Demanders
 - # Demanders $\uparrow \rightarrow$ shift right
 - # _____ $\downarrow \rightarrow$ _____ left

- Network and congestion effects :

- Network : More people use \rightarrow shift right
- Congestion : More _____ \rightarrow shift left

(S)

- Supply : relationship between price of a good and the quantity supplied
- Law of S : $P \uparrow \rightarrow Q \uparrow$
- Change of S : S curve shifts



- Change in Q Supplied : M along the C
- Supply Shifts :

① L of F&L / Inputs : $L \uparrow \rightarrow S \downarrow$

② Expectations : future $L \uparrow \rightarrow S \downarrow$ (reserve for future)

③ L of related outputs :

• Substitute in Prod : thing produced with the same resources

Ex : wool $\begin{cases} \uparrow \\ \downarrow \end{cases}$ jacket
 \downarrow sweater

• L of substitute $\uparrow \rightarrow S \downarrow$

• L of substitute $\downarrow \rightarrow S \uparrow$

- Complements in Prod : goods we get in addition when producing the target good
 - # of complement ↑ → s↑

④ # Suppliers : # Suppliers ↑ → s↑

⑤ Technology : Technological advance → s↑

⑥ State of Nature :
good → s↑
bad → s↓

Chapter 4 : Elasticity

• Elasticity : A measure of the responsiveness to a change

- Highly responsive \rightarrow elastic
- Weakly \rightarrow inelastic

(ϵ^0)

• Price Elasticity of D :

$$\frac{\Delta Q \text{ demanded } (\%) =}{\Delta P (\%)} = \frac{\Delta Q \text{ demanded}}{\Delta P}$$

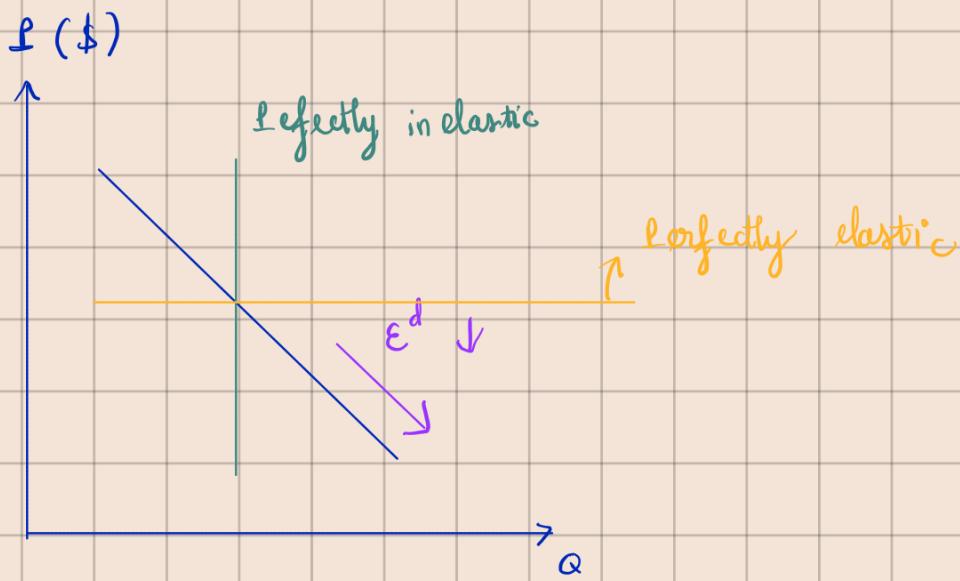
Ex : $\epsilon_{A \rightarrow B}^0 =$

$$\frac{\Delta Q_{A \rightarrow B} / \frac{\alpha_A + \alpha_B}{2}}{\Delta P_{A \rightarrow B} / \frac{P_A + P_B}{2}}$$

Consider $|\epsilon^0|$:

- $|\epsilon^0| = 0 \rightarrow$ perfectly inelastic demand (Ex: life saving medicine)
- $|\epsilon^0| = 1 \rightarrow$ unit elastic demand $\rightarrow \% \Delta P = \% \Delta Q^d$
- $|\epsilon^0| < 1 \rightarrow$ inelastic demand (Ex: food, gas)
- $|\epsilon^0| > 1 \rightarrow$ elastic demand (Ex: luxuries)
- $|\epsilon^0| = \infty \rightarrow$ perfectly elastic demand (Ex: same item but different sellers)

.) Elasticity \downarrow as $Q \uparrow$ on the demand curve



.) Factors influence E^d :

① Closeness of substitutes: more substitutes, more elastic

② Proportion of income spent on goods: more expensive, more elastic

③ Time elapsed since the price change: more time, more elastic

.) Effects of Elastic:

- P cut / hike
 - Elastic: \uparrow Total revenue / \downarrow
 - Inelastic: \downarrow _____ / \uparrow (moving E^d to unit E^d)
 - Unit Elastic: Unchanged

.) Gross Elasticity of Demand:

$$e^c = \frac{\% \Delta Q \text{ demanded}}{\% \Delta P \text{ other good}}$$

$\epsilon^c > 0 \rightarrow$ substitute

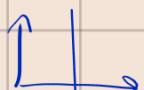
$\epsilon^c < 0 \rightarrow$ complementary

$\epsilon^c = 0 \rightarrow$ unrelated

•) Price Elasticity of Supply:

$$\epsilon^s = \frac{\% \Delta Q \text{ supplied}}{\% \Delta P} \rightarrow \text{Always positive}$$

$\epsilon^s = 0 : \text{perfectly inelastic}$



$= 1 : \text{unit elastic } s$



$< 1 : \text{inelastic } s$

$> 1 : \text{plastic } s$

$\infty : \text{perfectly elastic supply}$

$\left\{ \begin{array}{l} P \uparrow \text{ little bit} \\ Q \uparrow \infty \end{array} \right.$
 $\left\{ \begin{array}{l} P \downarrow \text{ little bit} \\ Q = 0 \text{ (no sale)} \end{array} \right.$



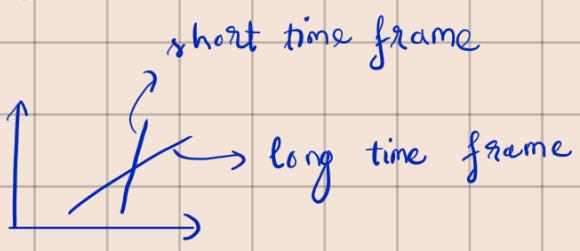
•) Factors that influence Elastic of Supply:

① Resource substitution possibilities: goods produced using resources that few substitutions are very inelastic

② Time frame:

• short run: inelastic

• Long run: elastic



③ Availability of resources : If supply is dependent on rare resource
→ can't increase production when $P \uparrow$

④ Bottleneck to entry : Hard to entry the market → inelastic

•) Income elasticity of Demand :

$$\frac{\% \Delta Q \text{ demanded}}{\% \Delta I}$$

of a good

•) Cross elasticity of Demand : measure the degree of ΔQ^d to ΔP

of its substitute or complement

Chapter 5 : Efficiency & Equity

•) Optimal consumption point : A point where marginal benefit = marginal cost

•) Allocation methods :

- Market price : S & D determine price
- Command system : order
- Majority rule : voter (use of tax \$)

- Contest
- First - come, first - served
- Lottery
- Personal characteristic

- Ex : A soccer team might choose players with good spatial awareness and speed

• Force : Enforce contracts, law suits, etc.

.) Efficiency : occurs when $MB = MC$

.) A demand curve is a marginal benefit curve

.) Individual Demand : relationship between an individual's quantity demanded and prices

• Individual Supply

.) Market Demand : \sum^d of all buyers' and prices

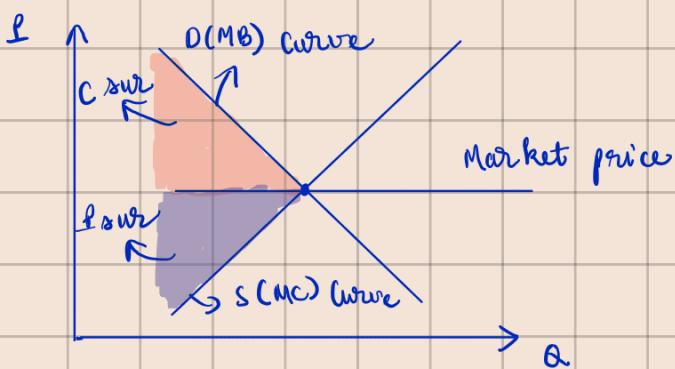
- Sum of all individual demand curves
- Market Supply

(MSB)

.) Marginal social benefit : market (society)'s marginal benefit

- Market Demand Curve = MSB curve (MSC)
- Market Supply Curve = Marginal social cost curve

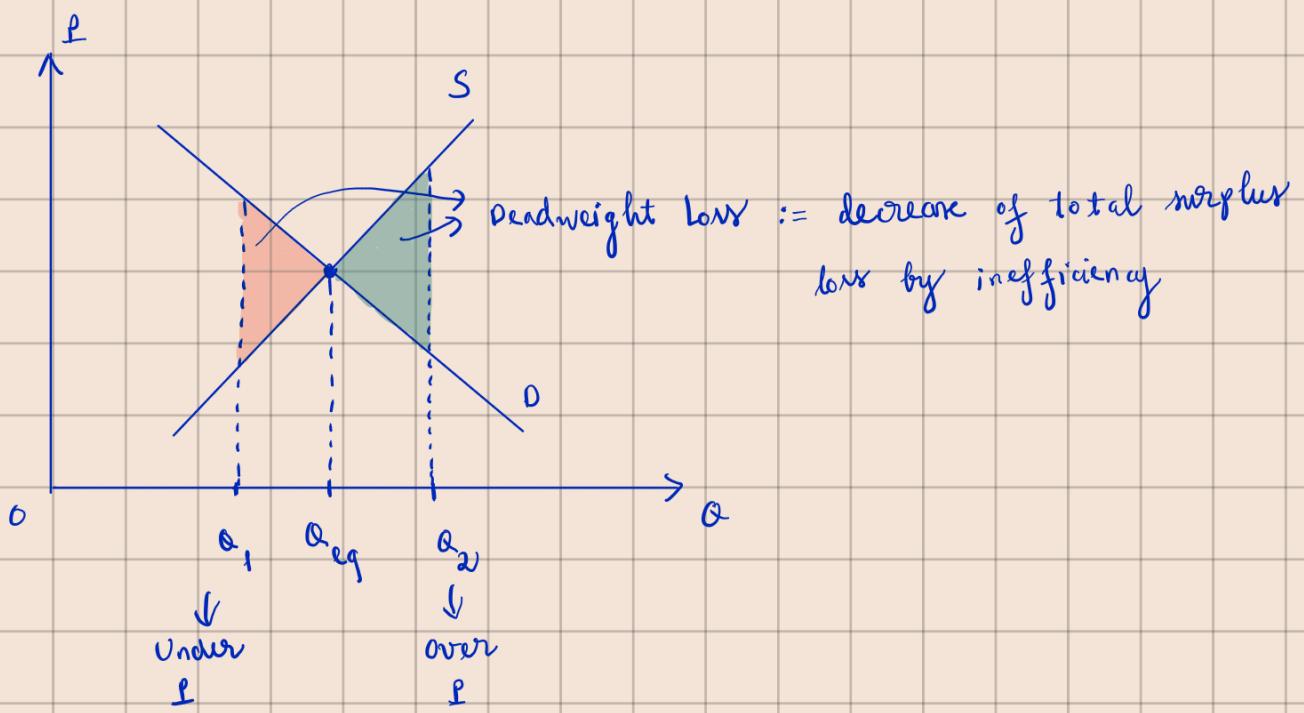
.) Consumer Surplus & Producer Surplus :



- At equilibrium, C sur & P sur are maximum
→ Allocative efficiency

1.) Market failure : when a market is not allocative efficient

- Underproduction / overproduction will occur



2.) Sources of Market Failure :

- Price and quantity regulations :

Ex : price caps / floors
limited # factories

- Taxes and Subsidies :

• Taxes : higher price for buyers, lower revenue for sellers
↓
underproduction

• Subsidies (payments by gov to producer) : lower price for buyers, increase revenue for buyers
↓
overproduction

- Externalities : cost / benefit that affects people that are not buyer / seller
 - External cost causes overproduction (doesn't care for others)
 - External benefit — underproduction (care too much —)
- Public goods & common resources :
 - Public good : everyone benefits without having to pay
→ underproduced , ex: public bus
 - Common resource : owned by no one and nonexcludable
→ overproduced , ex: overfishing
- Monopoly : only one seller exists → they will TP and VQ
→ Underproduction
- High transaction costs : cost of connecting seller & buyer high
→ Underproduction

) Competitive market's fairness :

- Utilitarianism : "it's not fair if the result isn't fair"
→ Want to achieve the greatest good for the greatest number
- Rawlidian : "it's not fair if the rules aren't fair"
→ Want to make the poorest better off

2) Redistribution : Taking from the rich and give to the poor

- Have consequence :

① Change behavior : cause people to work and invest less (Tax)

② Transfer cost

→ Cause under production

→ Trade off between equity & efficiency

3) Symmetry principle : people in similar situation should be treated similarly

- Not determined by outcome / result

• Private property rule : protect private property & can only transfer through voluntary exchange

Chapter 6 : Gov Action In Market

4) Price ceiling : a level where suppliers cannot charge higher

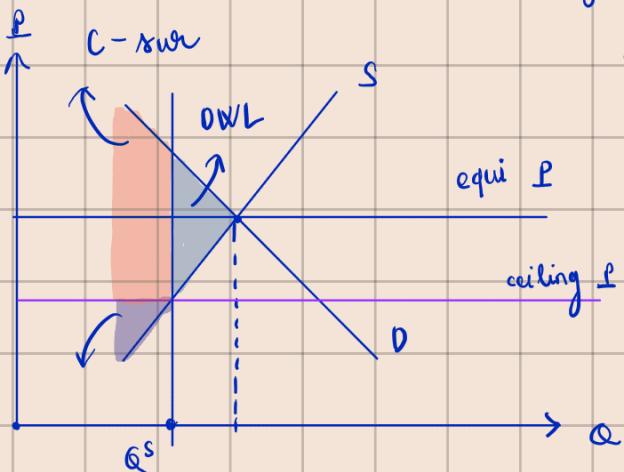
- If set below equi price → shortage → inefficiency

Ex : Rent ceiling if set below equi

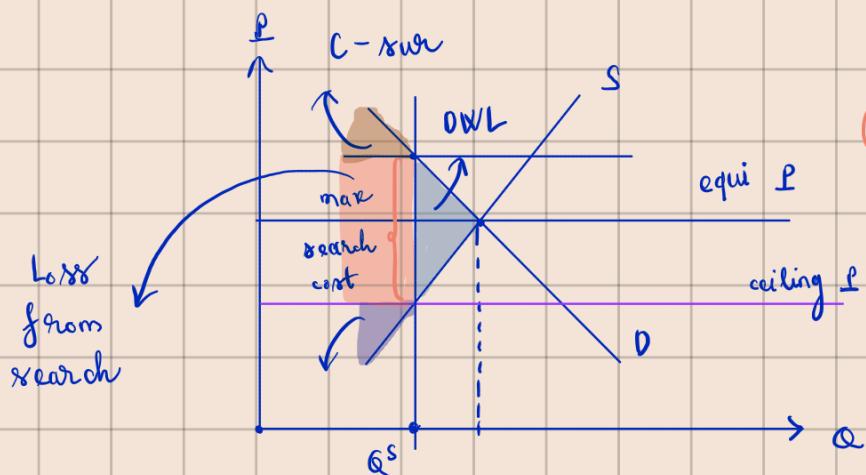
↳ Housing shortage

↳ Increased search activity
create illegal market

DWL: dead weight loss



- Searching cost: maximum price willing to pay can equal ceiling P
+ searching P



max search cost because
supplier don't want to sell
(don't get any profit) and
buyer spend too much money
finding seller so they
don't get any profit too

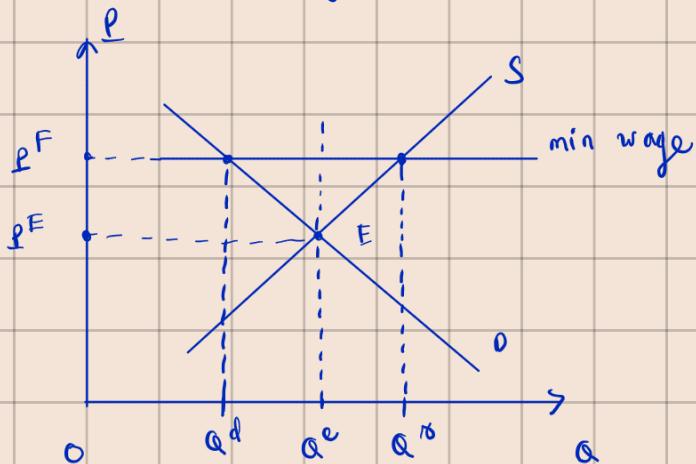
- Who benefits from granting ceiling: who has an apartment or lucky to find one

- Who loses: everyone else

- Price floor: a level where suppliers cannot charge lower

- If set above equi P \rightarrow surplus \rightarrow inefficiency

- Ex: Minimum Wage $>$ equi \rightarrow too many applicants but too few jobs
 \rightarrow unemployment



- $Q^d \rightarrow Q^s$: people who are unemployed
- $Q^d \rightarrow Q^e$: who should have a job but don't
- $Q^e \rightarrow Q^s$: who want to work at P^F and can't find job

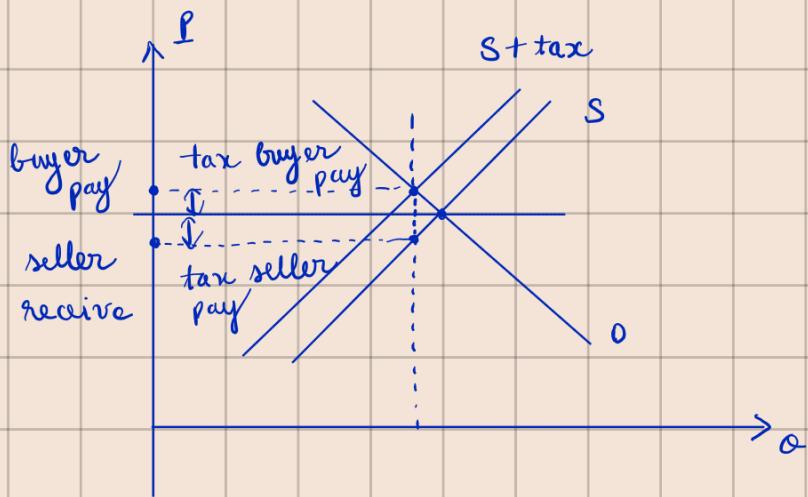
- Winners: [people who employed at low wage and now earn min wage
people who get a job at this min wage]

- Losers : [people employed at low wage and now lose their job & cuz min wage
people who should have the job if $P = P^E$

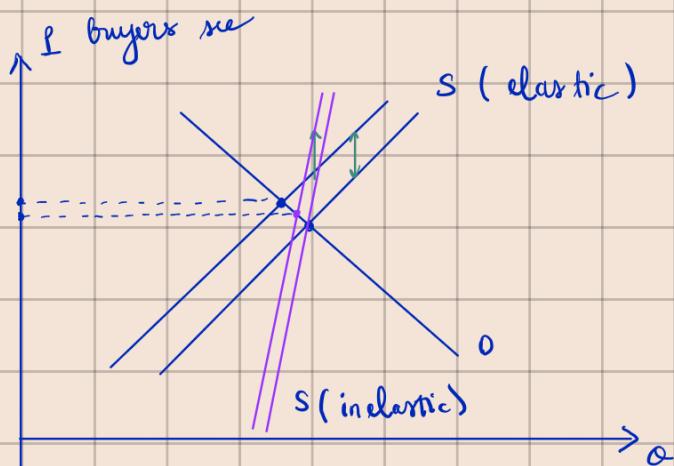
- Production quota : upper limit to Q produced, only has effect if set below Q^E

- Tax incident : the division of the burden of a tax between buyers & sellers

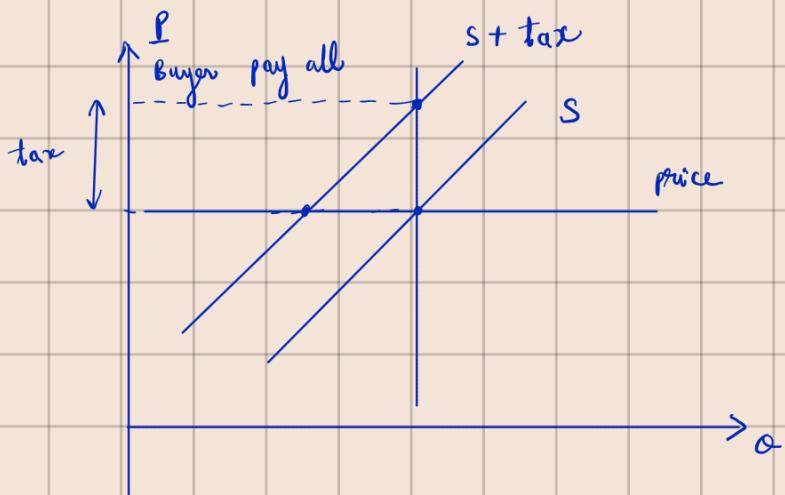
- Note :
 - The law doesn't decide tax incident, the market does
 - Put the tax on buyers or sellers has the same effects



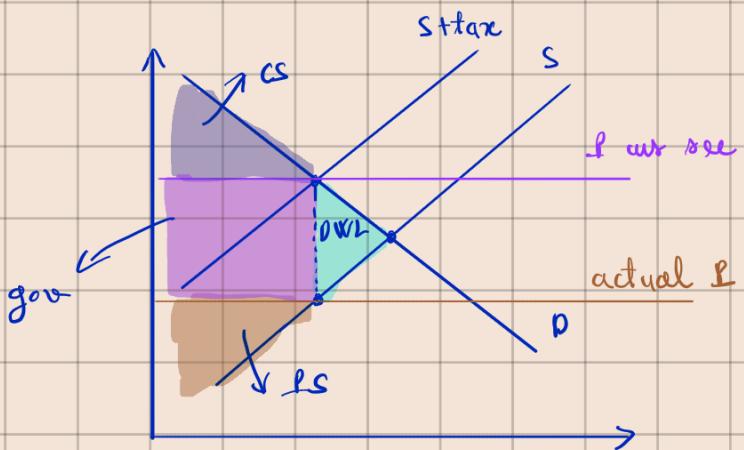
- Buyers paid less taxes if the demand is more elastic
- Sellers paid less _____ supply is more elastic



- Buyers pay all taxes if S is perfectly elastic
- Sellers _____ S is perfectly inelastic



→ Transfer effect : Some surplus is transferred from cur or prod → gov



Note : For perfectly inelastic demand or perfectly elastic supply , DWL doesn't occur because Q stays the same

→ subsidy : payment made by gov to a producer
 → Encourage producers to produce more than equi
 → S shift right but cause DWL (inefficient)

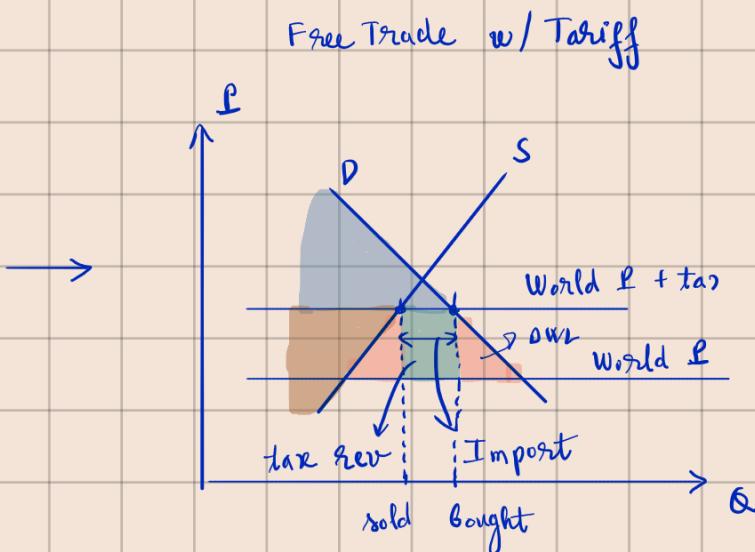
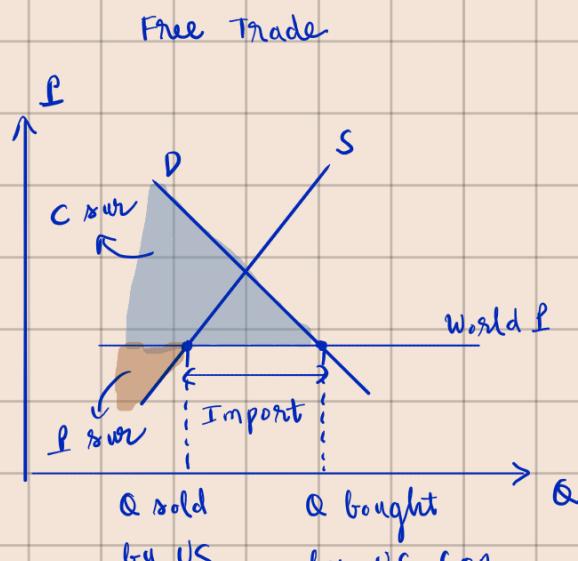
Chapter 7: International Trade

• Comparative advantage: A has comparative advantage to B when A produces one thing with lower opportunity cost than B

• National comp ad: A and B are nations

Import & Export

• Tariff: A tax on an imported good (imposed by domestic on international goods)



- Import \downarrow from f to f'
- Tariff revenue earned by govt

• Import quota: limits the Q of goods that can be imported in a given period

- Same eff as tariff except tariff rev is now importers' profits

• Trade war: A situation where one country increases its tariff, and another country, and the country that suffers the ↑ tariff do the same thing

Chapter 17: Externalities

• Externality : A market exchange affects a 3rd party

• Negative Externality : create a cost

• Production : comes from production (burning coal)

• Consumption : _____ consumption (smoking)

• Positive Externality : create a benefit

• Production : new technologies

• Consumption : plant trees

(MEC)

• Marginal private cost : the cost of an additional unit that is taken by the producer

(MEC)

• Marginal external cost :

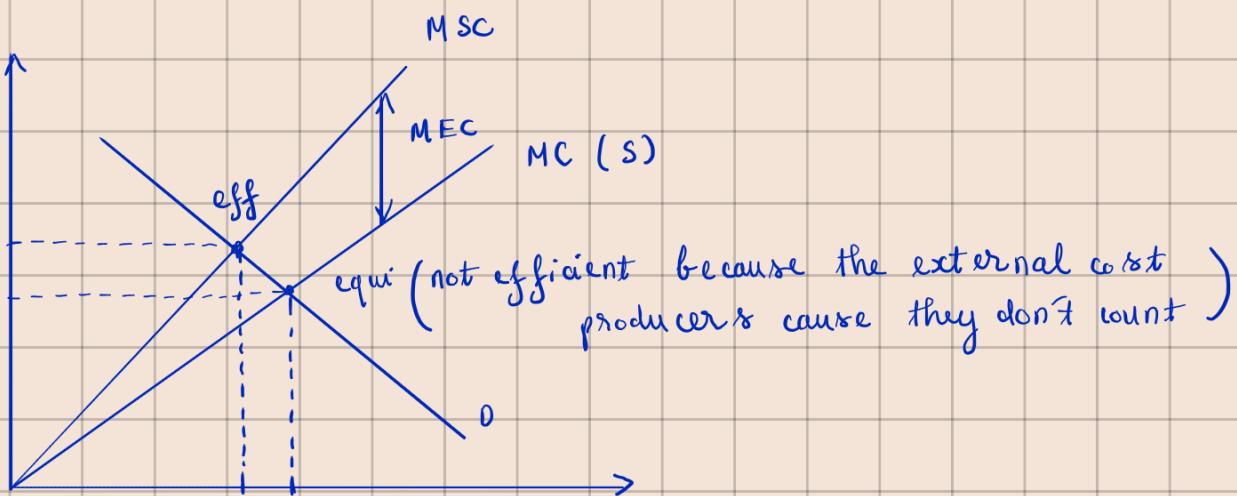
by other except the producers

• Without externalities, $MEC = 0$

(MSC)

• Marginal social cost : the marginal cost caused by everyone

$$MSC = MC + MEC$$



• Approaches to reducing inefficiency from (-) externalities :

① Establish property right

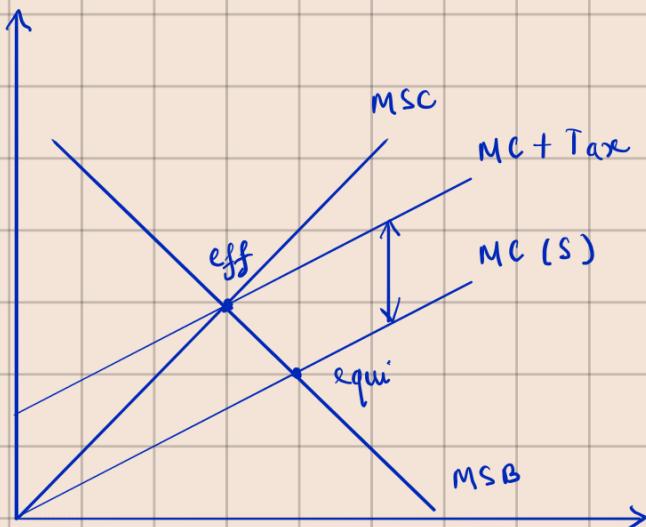
• Ex : producers cause dmg to houses \rightarrow get sued \rightarrow has to count this penalty fee into the private cost of P

(2) Establish Gov mandates

- When property rights are too hard to enforce, public choices are made

(3) Tax or cap the price the externality (Not in exam)

- Ligovrian Taxes: Taxes on (-) externality



- Cap: quota - a pollution quota
 - Cap at $MC = MSB$
 - Marginal abatement cost: cost of reducing one addition pollution unit

) Cournot Theorem: if property rights exist, and transaction costs of enforcing them are low, then private transactions are efficient and it doesn't matter who has property rights

- Polluter get property rights \rightarrow efficient (they have to deal with it)
- People except polluter get property rights \rightarrow efficient if only low transaction cost of enforcing them (lawyer costs, ...)

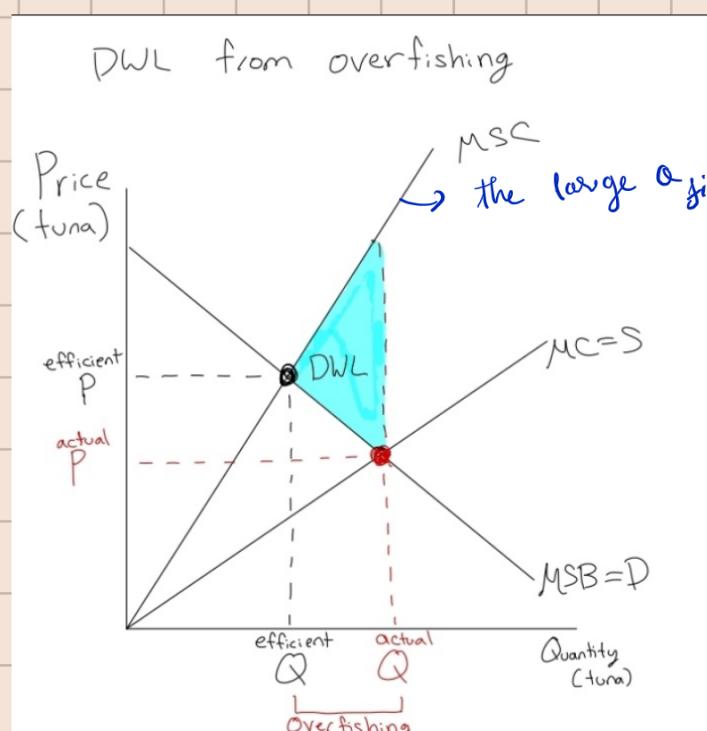
Classification of goods:

- Excludable: possible to prevent someone from enjoying its benefit
 - Nonexcludable
- Rival: one person's use \downarrow & available for others

- Nonrival

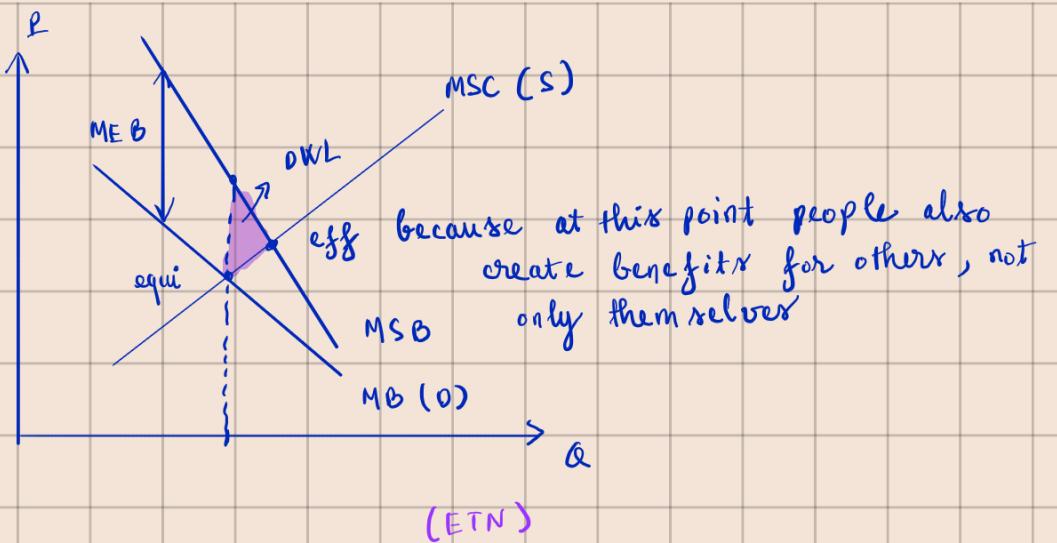
- Ex : Excludable + Rival : Food (private good)
 Excludable + Nonrival : Internet (club good)
 Nonexcludable + Rival : Fish in oceans (common resource)
 Nonexcludable + Nonrival: National defense (public good)

- Free rider problem : People benefit from goods/services without paying for them → Market failure



the larger Q_{fish} catch, the larger the cost (harder for others to catch fish)

- Marginal private benefit : the benefit that the consumer of a good or service receives from an additional unit
 (MPB)
- Marginal external benefit : the benefit that people except consumers receive from an additional unit of a good / service
 (MEB)
- Marginal social benefit : the marginal benefit that everyone receives



- Approaches to increase eff using (+) externalities:

- ① Public production: public authority given revenue by gov to produce a good / service
- ② Subsidies: payment to private producers by gov
- ③ Vouchers: a token gov gives households to buy a specific good / service

Note: All of these cost money (gov uses taxes), but if done right can achieve an efficient outcome

-) The tragedy of commons: A person use too much of a common resource s.t they cause others in the society to suffer

Chap 11

-) Short run: Capital, land, entrepreneurship fixed
Labor is variable
-) Long run: all factors of production can be varied

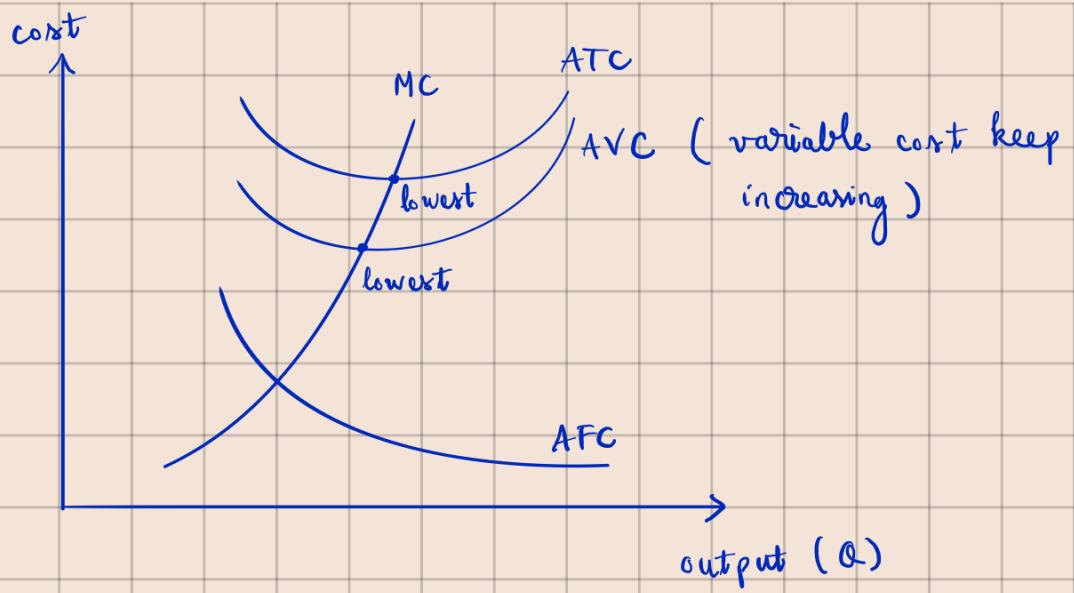
- Marginal product of labor : Δ total output results from an additional unit of labor
- Diminishing marginal return : occur when the marginal product of an additional worker is less than that of the previous worker



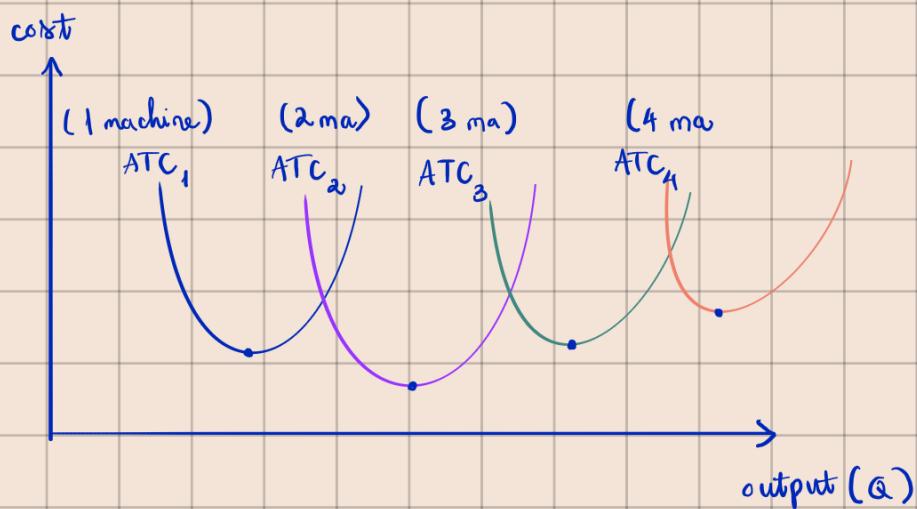
- Short-run cost :
 - (TFC)
 - Total fixed cost : the cost of the firm's fixed factors
 - (TVC)
 - Total variable cost : the cost of the firm's variable factors
 - (TC)
 - Total cost : $TC = TFC + TVC$
 - (AFC)
 - Average fixed cost : $\frac{TFC}{Q}$
 - (AVC)
 - Average variable cost : $\frac{TVL}{Q}$
 - (ATC)
 - \Rightarrow Average total cost : $ATC = AFC + AVC$

- Marginal cost : The increase in total cost from a one-unit increase in output

$$\bullet MC = \frac{\Delta TC}{\Delta Q}$$



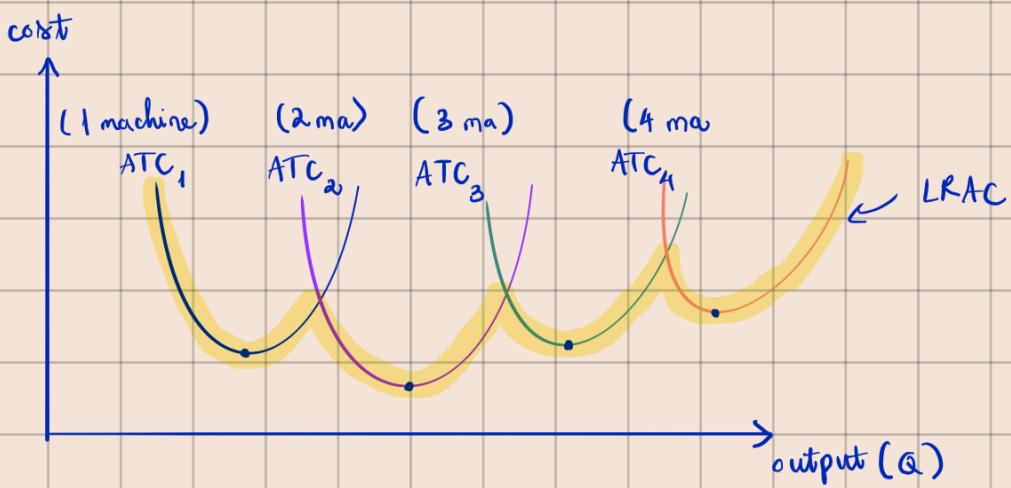
.) Short - run costs :



. \uparrow capital \rightarrow \uparrow output

(LRAC)

.) Long-Run Average Cost Curve : a firm operates on its LRAC when it produces a given output at the least possible cost

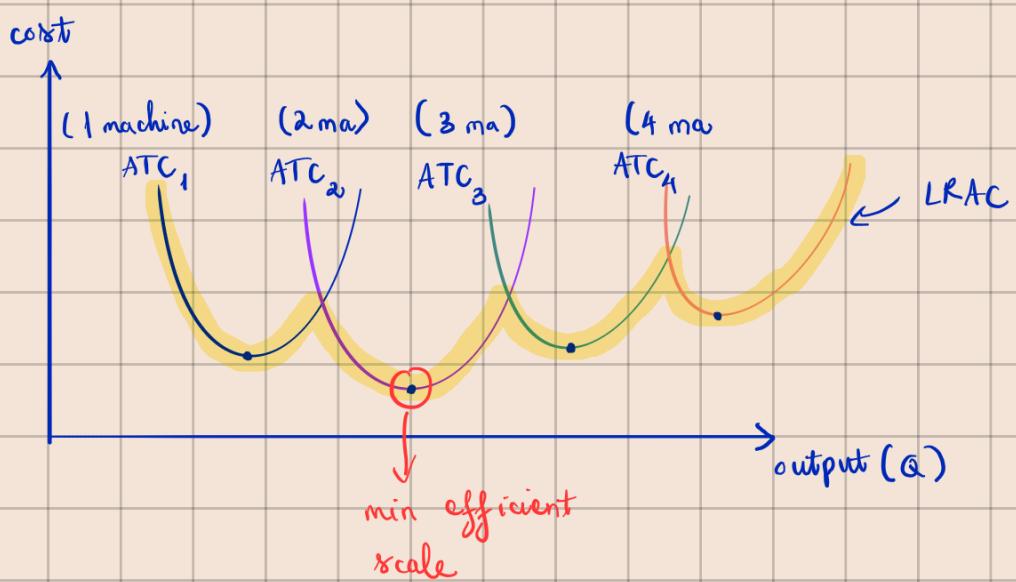


-) Economies of scale: features of a firm's technology that makes ATC fall as Q increases
- Where LRAC falls

-) Diseconomies of scale: ATC rises
- Where LRAC increases

-) Constant return to scale: ATC constant
- Where LRAC is horizontal

-) Minimum Efficient Scale: the smallest output at which long-run average cost reaches minimum



Chap 10 :

Intro to Firms
Business organization

-) 4 market types: perfect comp → monopolistic comp, monopoly, oligopoly
-) Perfect comp:
- Many buyers and sellers with an identical product

- No individual buyer or seller can affect price. (price-taker)
 - No barrier to entry of new firms
- Ex : wheat, corn, price

) Monopolistic comp :

- A large number of firms compete by making similar but slightly diff products (product differentiation)

) Monopoly :

- One firm
- Produce good / service with no close substitute
- 3 barriers to entry
- Can be local or global

Ex of local monopoly : water suppliers

) Oligopoly :

- A small # firms compete
- Might produce differentiated products
- Firms act strategically by anticipating actions of other players

) Comp level of the 4 market types :

perfect comp > mono comp > oligopoly > mono

↑ 4-firm %
↓ HH index

) Concentration measure : how to measure market comp → 2 ways

Four-firm concentration ratio : % of total value of sales accounted for by the 4 largest firms in an industry

- ~0 for perfect comp

- 100% for monopoly
- > 60% : highly concentrated and dominated by a few firms
- < 60% : indicate a comp market

(HH index)

) Herfindahl - Hirschman Index: squared percentage market share of each firm summed over the largest 50 firms in the market

- HHI is small in perfect competition
- Monopoly HHI = $100^2 = 10000$
- A market where HHI > 2500 is uncompetitive

) Limitations of concentration measure: fail to account for

① Geographical scope of the market: because it takes on the whole nation

- Ex: concentration measure for newspaper is low, but in cities it is highly concentrated

② Barriers to entry and firm turnover:

- Some markets are highly concentrated but entry is easy and turnover large
- A market with few firms might be competitive because of potential entry

③ Market doesn't equate to industry

- Concentration ratios based on industry, but market is usually smaller than industries

Ex: Pharmaceutical industry has a low concentration ratio but the measles vaccine and AIDS fighting drugs don't compete with each other (many monopolies)

- Firms assigned to one industry even if operate in many markets
 - Firms switch from one market to another for opportunities
-) Economies of Scope: when a firm uses specialized (often expensive) resources to produce a range of goods and services

Chap 12: Perfect competition

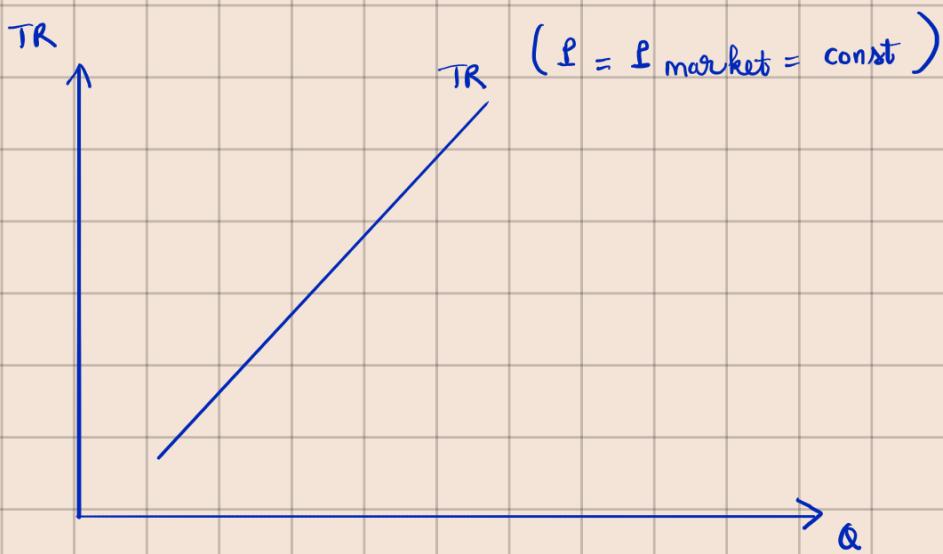
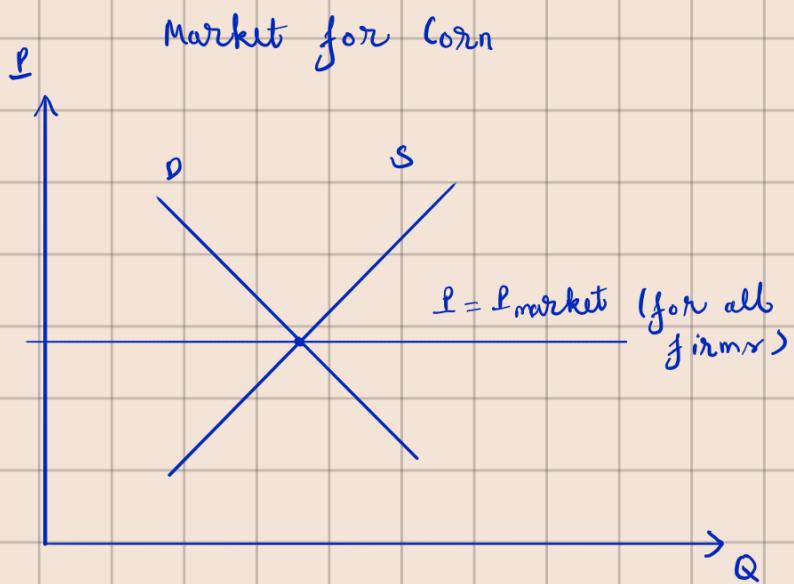
-) Perfect Competition: a market w/
- Many buyers and sellers
 - Identical Product
 - No restrictions on entry to the market
-) Price takers: firms that cannot influence the market price because its production is an insignificant part of the total market
- In perfect comp market, all firms are price takers, $P = \text{market } P$ (charge higher \rightarrow no one will buy)

$$\text{Total Revenue} = P \times Q$$

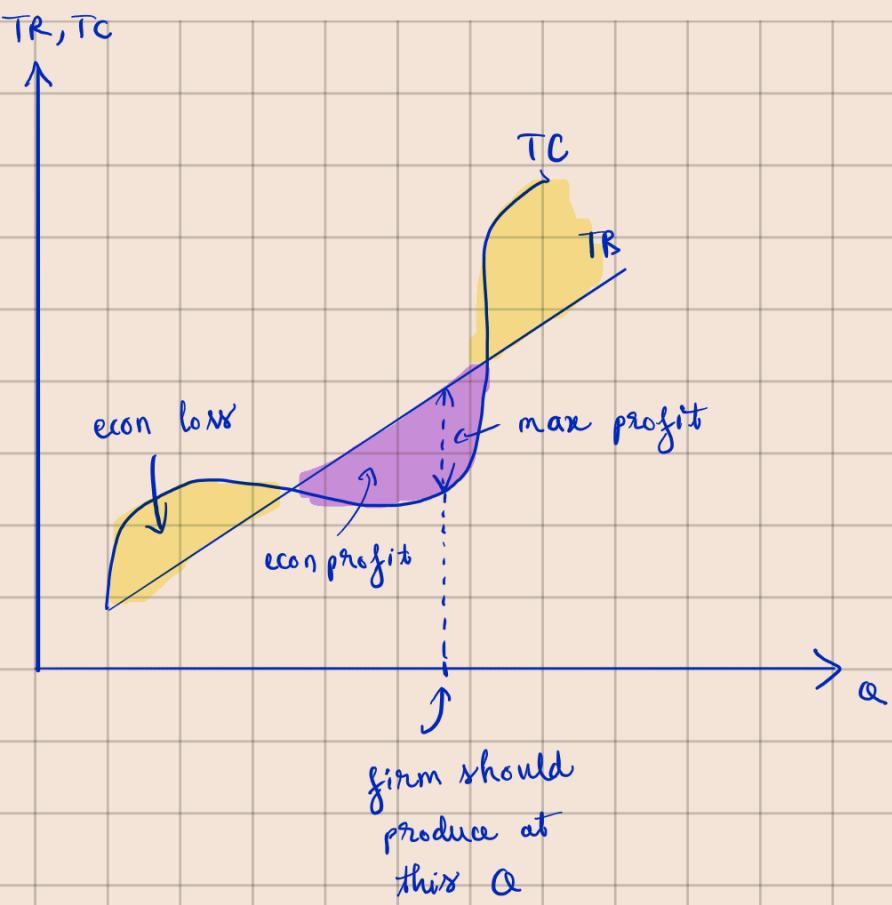
$$\text{Total cost} = TVC + TFC$$

$$\text{Economic profit} = TR - TC \quad \text{when } TR - TC > 0 \quad \begin{pmatrix} \text{If } TR - TC < 0 \\ \rightarrow \text{Economic loss} \end{pmatrix}$$

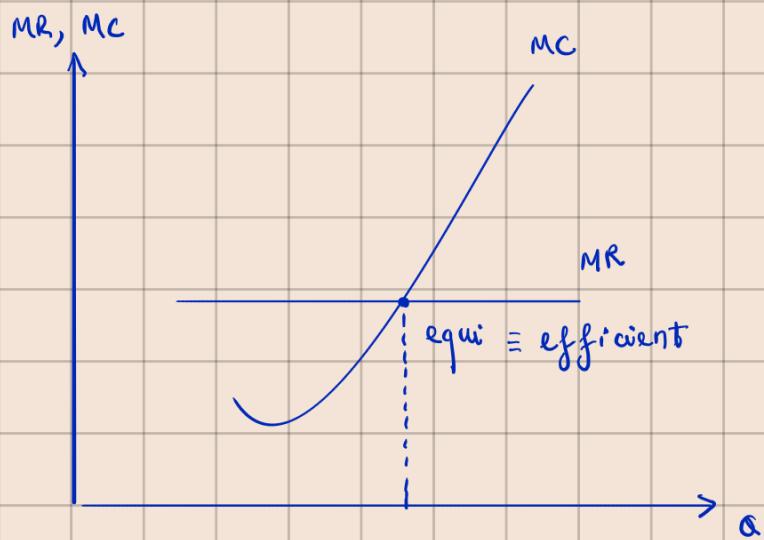
$$\text{Marginal Revenue} = \frac{\Delta TR}{\Delta Q}$$



•) Illustrating econ profit and loss:



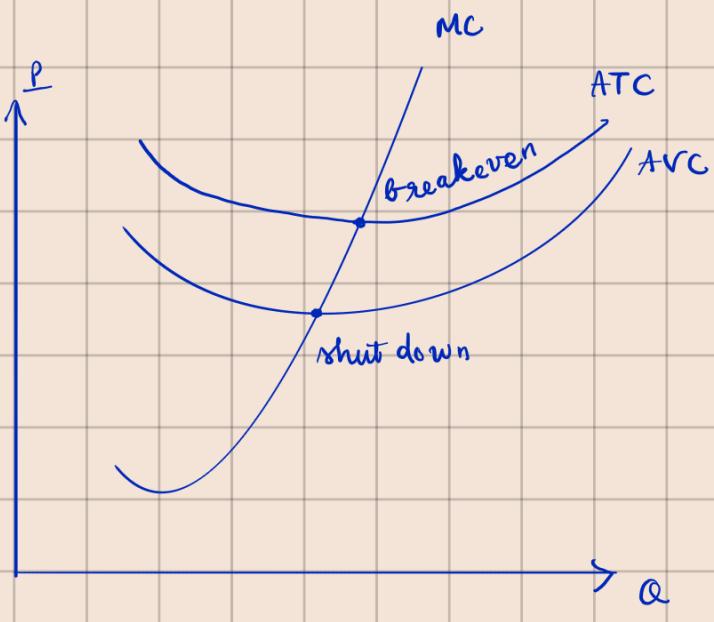
.) Illustrating/ MR, MC:



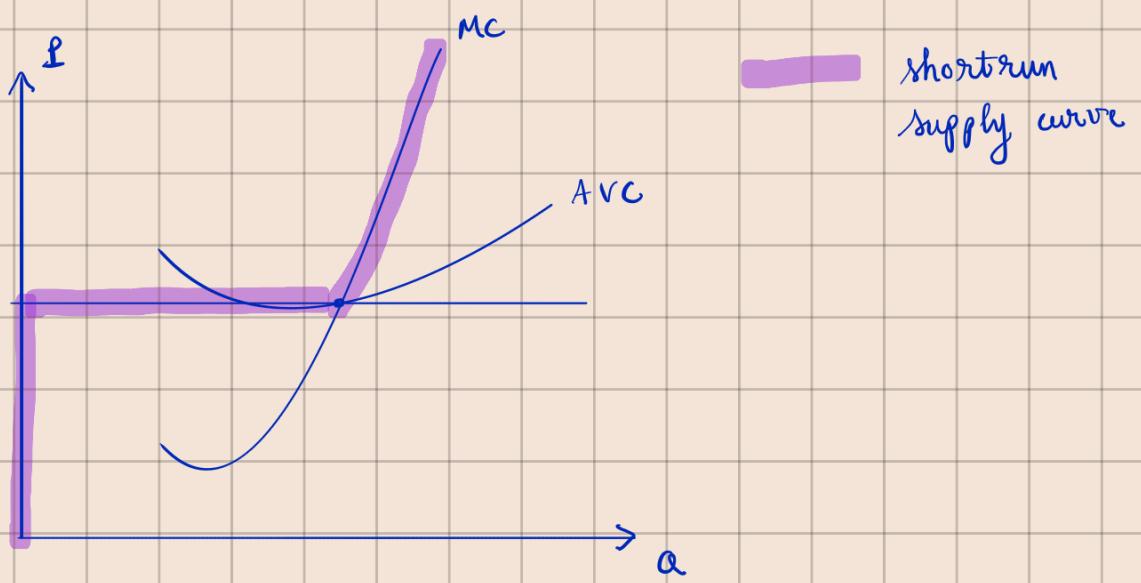
.) Shutdown Decision: When $P < ATC \rightarrow$ econ loss. Consider:

- If $P > AVC$: can recover in a long run
→ No shut down
- If $P < AVC$: the longer operating, the more lossing
→ Shut down

.) Breakeven : where $P = ATC$



When firm decides to shut down :

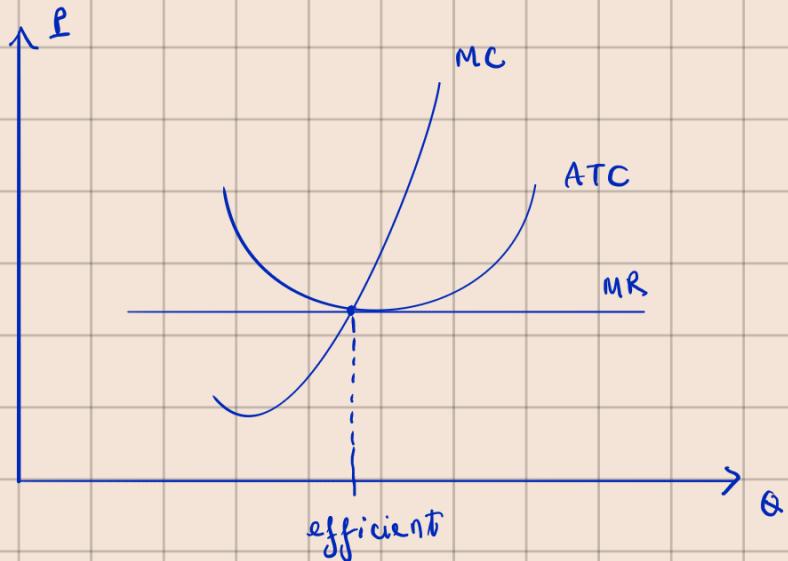


• In the short run, firm's capital, # firms stay the same, and P stays the same (at P_{market})

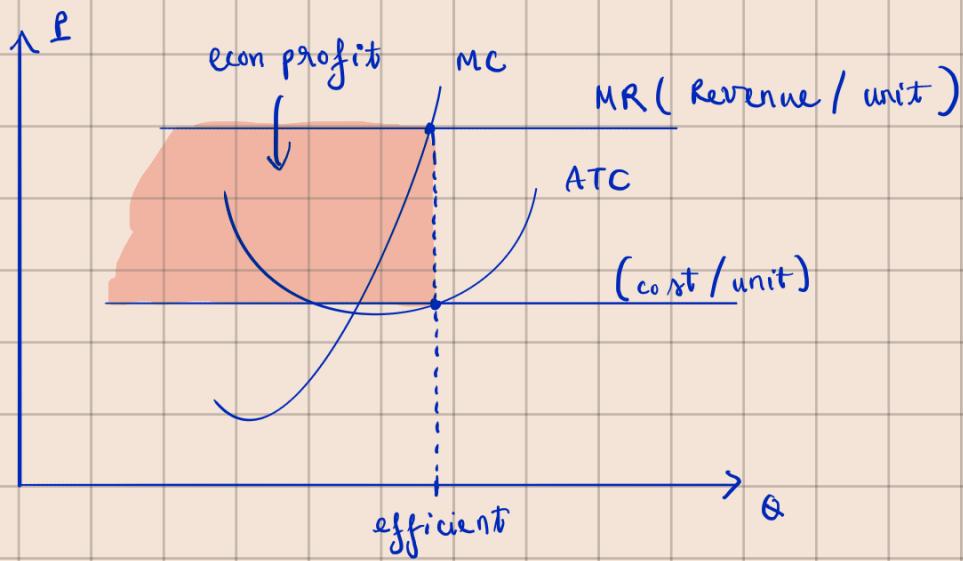
.) Short-run Market Supply Curve : shows the quantity supplied by all firms at each price in the short run

.) Possible Short-run outcomes :

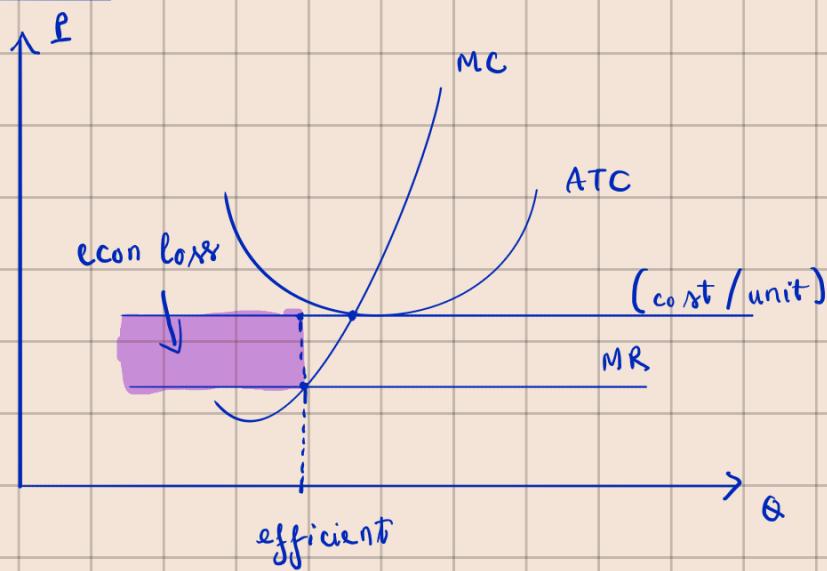
- Break even: $P = ATC$



- Econ Profit: $P > ATC$



- Econ Loss: $P < ATC$

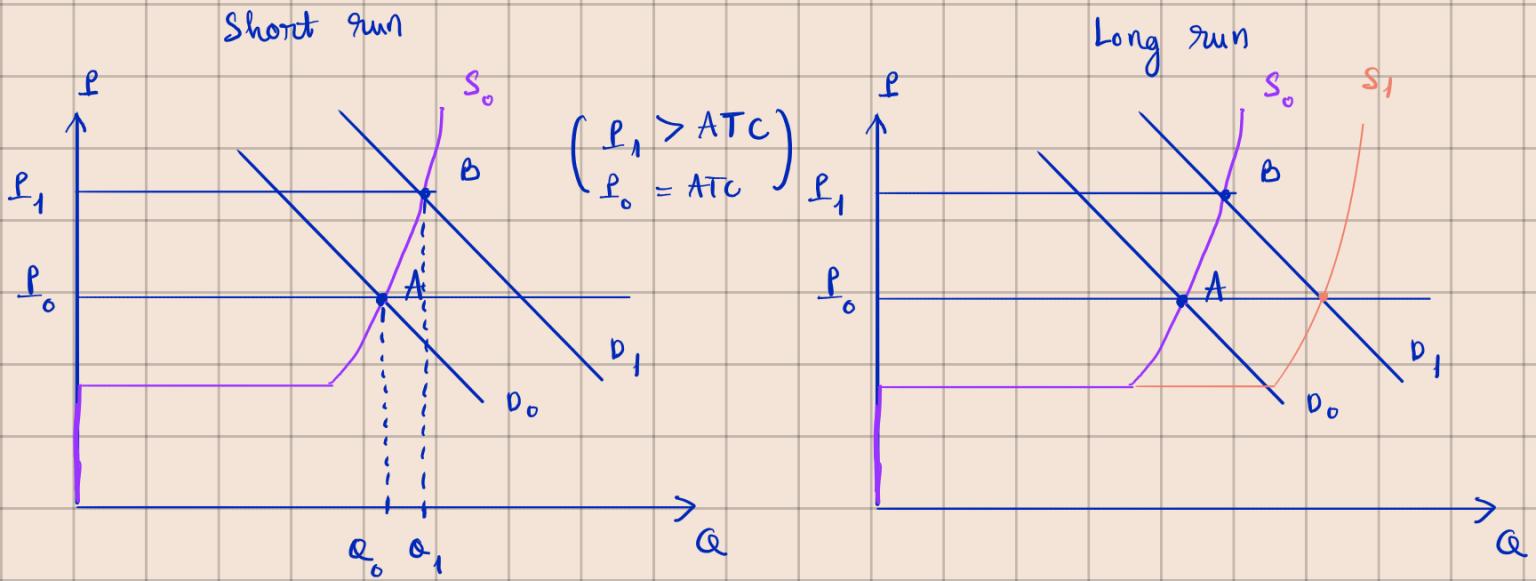


- Note : In the short-run, a firm can make an econ loss, econ profit, or break even

In the long-run, a perfectly competitive firm can only make zero econ profit due to entry and exit into the market

-) Enter : when firms make econ profit ($P > ATC$), new firms will enter the market
 $\rightarrow P_{\text{market}} \downarrow$ and econ prof \downarrow
-) Exit : when firms have econ loss ($P < ATC$), firms exit market
 $\rightarrow P_{\text{market}} \uparrow$ and econ prof \uparrow
- Note : At equi (no econ prof or loss) \rightarrow enter and exit stop
 - In the long run, $P = ATC$

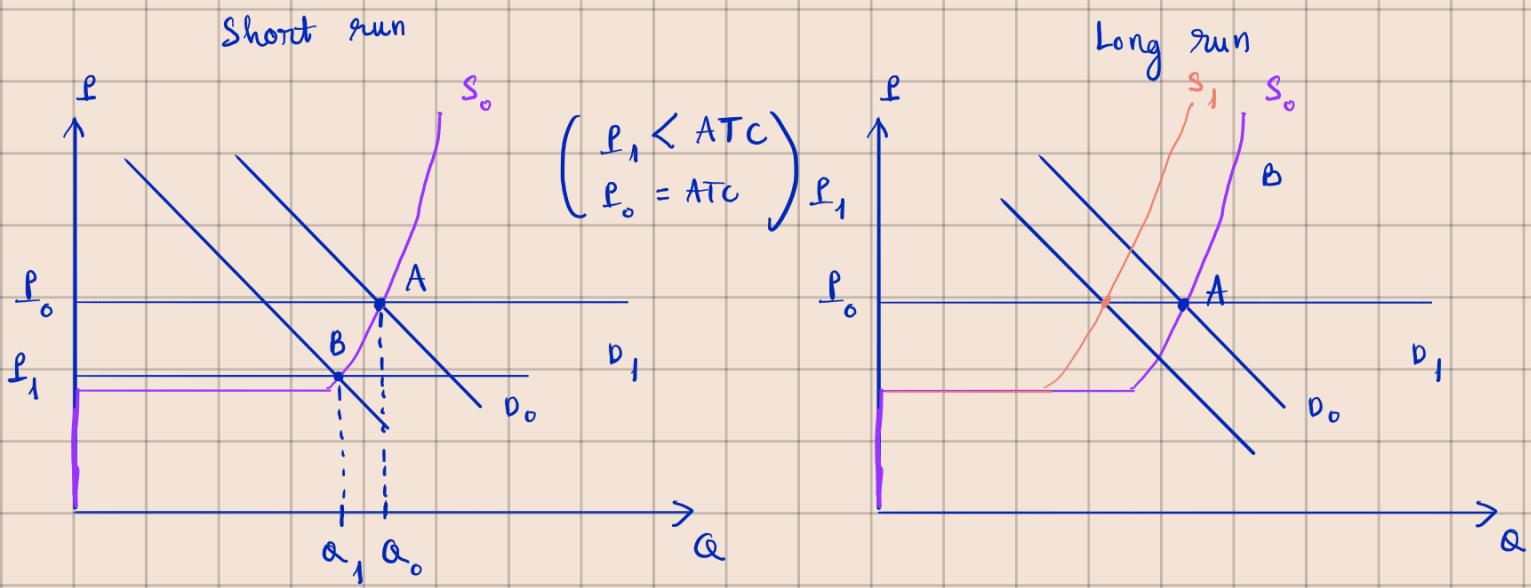
) Demand ↑ :



- Short run : $D \uparrow \rightarrow P \uparrow, Q \uparrow$, econ profit occurs

- Long run : new firms enter \rightarrow S shifts right, P↓, QT, zero econ profit, # firms ↑

) Demand ↓ :



Chap 13 :

Mono poly /

) 3 types of barrier to entry :

- ① Natural : economies of scale enable one firm to supply the entire market
- ② Ownership : one firm owns a significant portion of key resource
- ③ Legal : competition and entry are restricted by granting of

- public franchise : exclusive right to supply a good / service (VSPS)
- gov license : controls entry into occupations / industries (med, law)
- patent : right for invention
- copyright : right granted to an author / composer for some

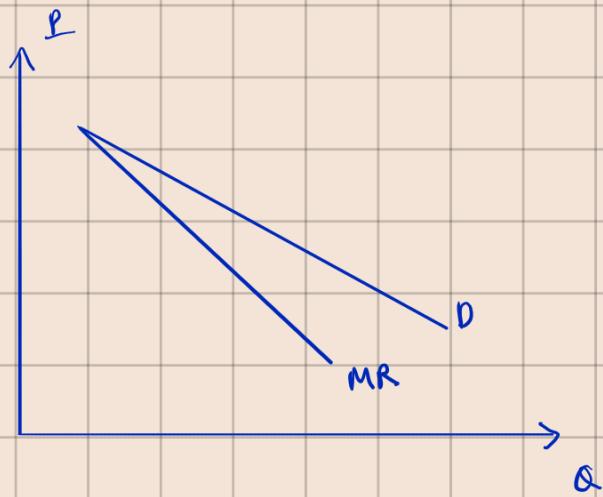
artistic work

.) Monopoly Price - Setting Strategies:

- Single Price monopoly: all units have the same P
- Price discrimination: diff units \rightarrow diff P

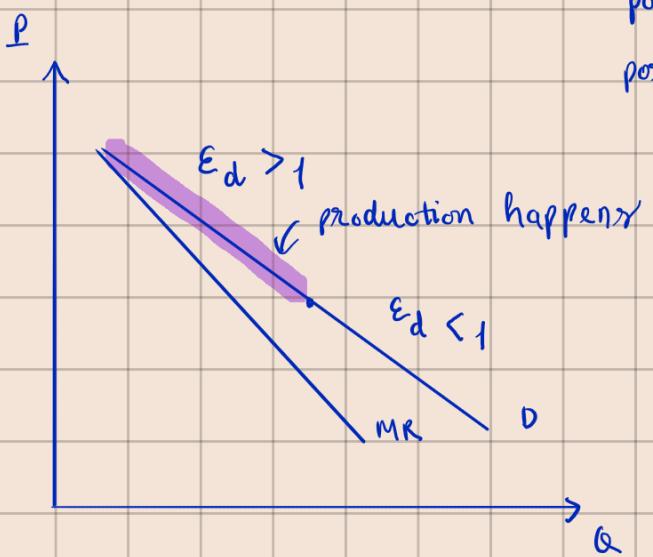
For Single P mono:

.) Marginal Revenue curve: always less than price



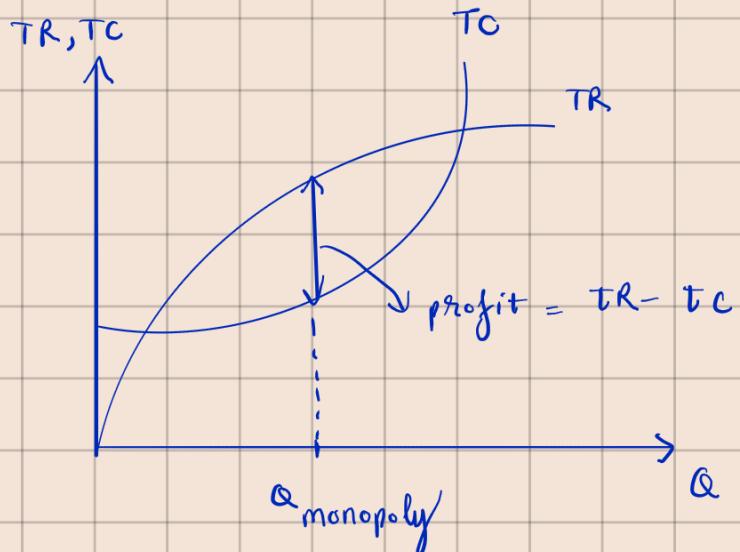
.) Marginal Revenue and Elasticity: monopoly never produces on inelastic

portion of D because at inelastic portion, $\uparrow P \rightarrow$ smaller $\uparrow Q$ purchased

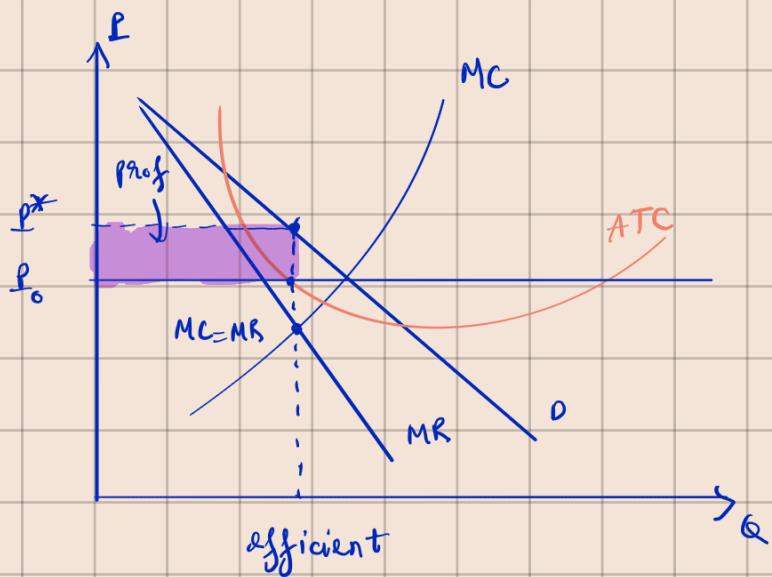


- Monopoly can decrease Q and $\uparrow P$ to \uparrow profit

.) Price and output :



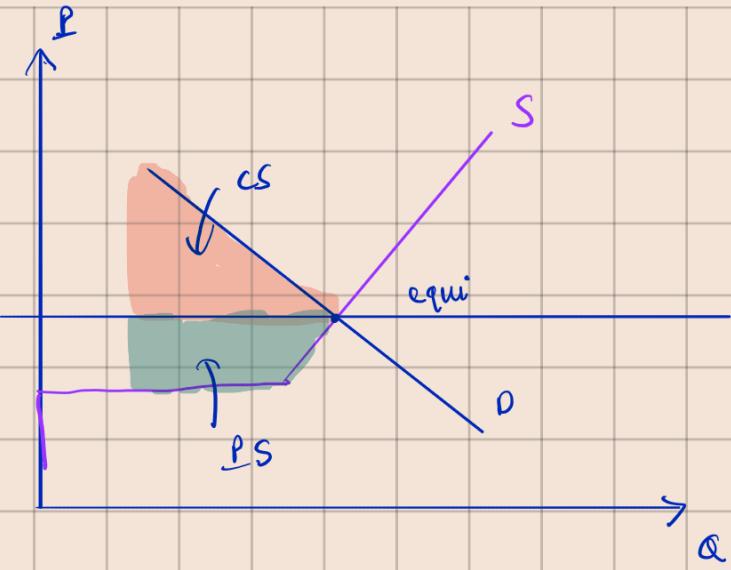
.) max profit occurs at $MR = MC$



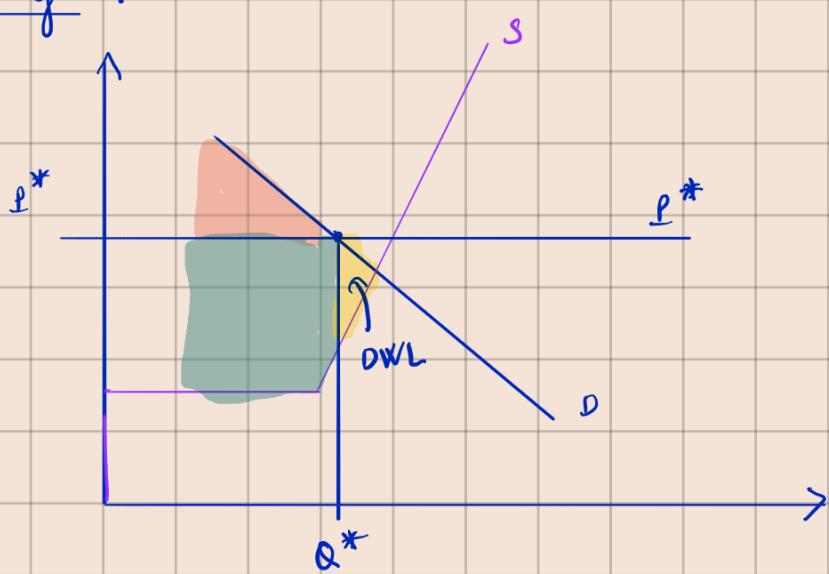
• P^* doesn't have to $\rightarrow P_0$ because no firms can enter
 \rightarrow make profit even in the long run

.) A single-price monopoly produce a smaller output and charges higher P than perfect comp market

.) Perfect comp Surplus: just like the simple market prototype,
except S can shut down



•) Monopoly :



For Price discrimination monopoly :

•) 2 kinds of P disc :

- Diff P for diff buyers
- Diff P for diff units of goods

•) Properties :

- By getting buyers to pay P closest to the max willingness
→ capture some CS into PS
- ↑ PS and earn profit

-) perfect l disc : an extreme case where each unit is sold at max willingness
→ No CS, all become PS
- No DNL → efficient
 - The more perfectly the monopoly can l disc, the more efficient

) Regulating monopolies :

- MC Pricing : $P = MC \rightarrow$ econ loss
- AVC Pricing : $P = AVC \rightarrow$ break-even
- 2 methods to implement AVC Pricing :

① rate of return regulation : A firm must justify its P by justifying its rate of return

② P cap regulation : P ceiling

Chap 14 :

Monopolistic Competition

) Mono comp :

- A large # firms
- Producing a differentiated product
- No barriers to entry

) P and Q decisions :

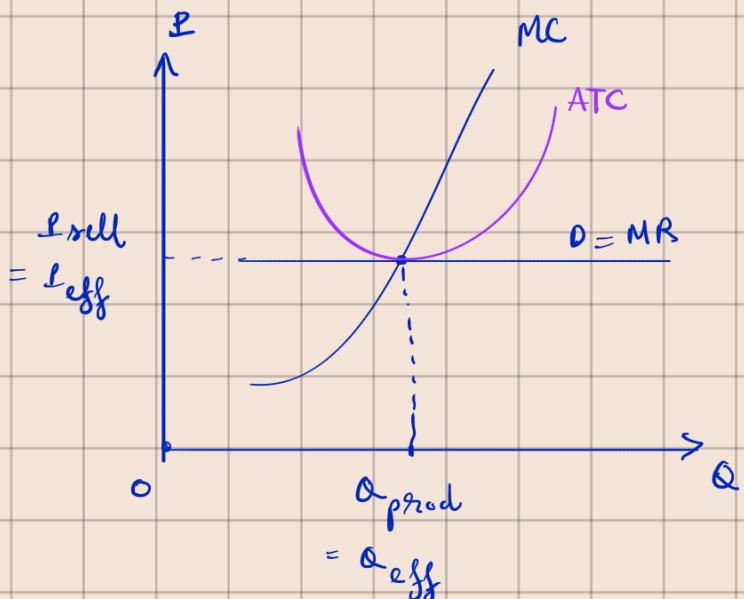
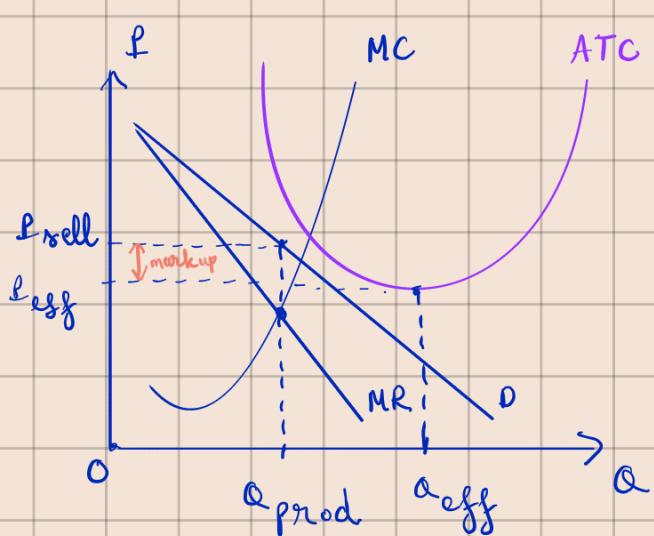
- A firm in mono comp produce like a single-price mono
- In a short run, may earn econ profit / loss / break-even
- In a long run, only earn break-even (due to enter / leave)

$$.) \text{ Markup} = P - MC$$

- For perfect comp, Markup = 0
- For mono comp, Markup > 0

$$.) \text{ Excess capacity} = Q_{eff} - Q_{prod} \quad (Q_{eff} \text{ when } P = ATC)$$

- For perfect comp, $Q_{eff} = Q_{prod}$
- For mono comp, $Q_{eff} < Q_{prod}$



.) Efficiency:

- Eff when MSB = MSC
 - MSB = P
 - MSC = MC
 - And $P > MC$
 - But product variety comes w/ a cost $\rightarrow C_{var}$
- \Rightarrow If $P = MC + C_{var} \Rightarrow$ Eff
otherwise not eff

•) Oligopoly:

- A small # firms
- Natural or legal barriers to entry
- Identical / differentiated product
- Compete on P, Q, and marketing

•) Duopoly: market w/ only 2 firms

•) Properties:

- Interdependence: P and decision of firms affect the rest
- Temptation to cooperate: firms can together cooperate → form a cartel, act like monopoly
- Cartel: a group of firms colluding to limit output and P to create econ profit

•) Game theory: a set of tools for studying strategic behavior

•) Game: have rules, strategies, pay off, and outcome

•) The Prisoners' Dilemma: 2 prisoners committed a crime and are put into 2 separate rooms for questioning

• Rules:

- If both confess, each receives 5-year sentence
- If one confesses and one doesn't, the confessed receives 1-year sentence, and the other receives 10-year sentence
- If both deny, each receives 2-year sentence

- strategies: confess / deny
- outcomes:
 - Both confess : 5-years each
 - _____ deny : 2-years _____
 - A confesses, B denies : A \rightarrow 1 year, B \rightarrow 10 years
 - A denies, B confesses : A \rightarrow 10 years, B \rightarrow 1 year
- Lay off matrix : show the outcome for every possible action done by a player wrt the action of the other

		A's strategy	
		C	D
B's strategy	C	A : 5 B : 5	A : 10 B : 1
	D	A : 1 B : 10	A : 2 B : 2

- Nash equilibrium : each player takes the best possible action given the action of the other player
- Collusive agreement : agreement between firms to form a cartel
- Cheat : one \uparrow Q, \downarrow P to \downarrow profit of other seller and \uparrow profit of their own

Note : If game repeated, cooperative equi can occur

- Mindsets :
 - ① Tit-for-tat : cooperate if the other cooperated last time

② Trigger strategy : if other cheat \rightarrow never cooperate again