ECON 120
Cheat Sheet Test 5

Optimization $\frac{MUx}{Px} = \frac{MUy}{Py}$

Profit maximize: product (suppliers) / utility (consumers). Optimize marginal per dollar.

Accounting profit = economic profit minus economic costs, i.e., opp. costs incurred from not doing things. Specifically: cost of people's time, cost of money's time (interest/risk)

Game Theory

If π(coop) > π(mixed), coop eq.
If π(cheat) > π(mixed), cheat eq.

20/20	25/5
5/25	0/0

Eq: 0/0 (cheat)

30/30	25/5
5/25	0/0

Eq: 30/30 (coop)

30/30	25/5
5/25	8/8

Eq: 8/8, 30/30

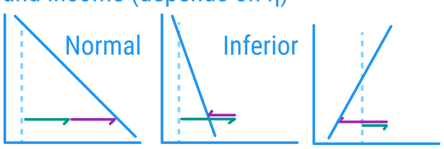
Supply / Demand

S+ → P-Q+   S- → P+Q-
D+ → P+Q+   D- → P-Q-
S+D+ → P?Q+   S-D- → P?Q-
S>D → P+Q?   D>S → P-Q?

Sum of individual curves. Individual from indifference / budget curves

Consumers

When price down: substitution (up) and income (depends on η)



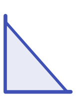
Giffen good = super essential
Conspicuous consumption = super luxury

Goods can be **excludable** (limit by action) or **rival** (limit by use).

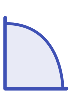
Public (E+ R+) provided by gvmt
Private (E- R-) neg extern
Common (E- R+) pos extern, P = 0, allocative efficiency impossible
Club (E- R-) MC = 0, typically extreme monopoly power

(C/P)PFs

Opp. cost = dA/dB. Unemployment moves point inwards, not PPF



Linear PPF
Perfectly efficient resource re-allocation.



Bowed Out PPF
Inefficient. Opportunity cost increases with production.

PPF Expands
Tech advancement, population increase.

PPF Contracts
Resource loss, population decrease.

Market Failure

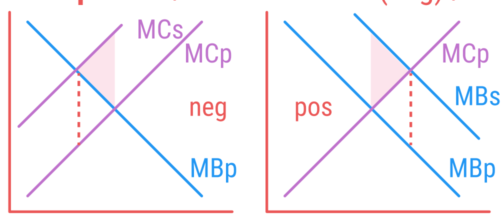
DWL > 0. When not allocatively efficient, requires intervention to fix. Negative surplus can exist on right of equilibrium.

Monopolies/oligopolies/monopolistic competition all cause failure. Non-rival and non-excludable goods also always inefficient.

Asymmetric info: **Moral hazard** is hiding after (skydiving after buying insurance), **adverse selection** entering transaction (insider trading).

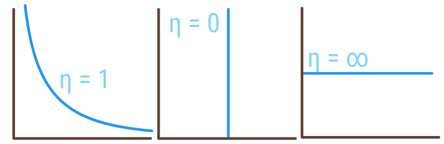
Externalities

Extra **private** / **societal** costs (neg) / benefits (pos). Tax/subsidy to fix.



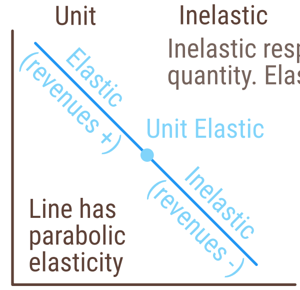
Elasticity

...of demand $\eta = \frac{(dQ/Q)}{(dP/P)}$



Unit   Inelastic   Elastic

Inelastic responsive to quantity. Elastic to price



Line has parabolic elasticity

Unit elastic gives optimal revnue / total expenditure

Factor Markets

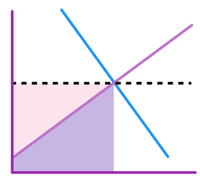
Human/physical capital (stock) which produces cash flow. MRP = MR × MP acts as a demand, apply normal S/D graph.

Equilibrium differentials don't change. Intrinsic (features) vs acquired (invest) vs compensating (non-monetary diffs) e.g. hazard pay or wage discrimination. **Factor mobility** is ease in reuse in new industry, erodes **temporary differentials**.

Gains = **transfer earnings** (opp cost) + **economic rent** (extra). More elastic → transfer earnings.

Capital Markets

Interest is the "price" of capital. Do S/D with interest rate and investment instead of price and quantity.



Labour

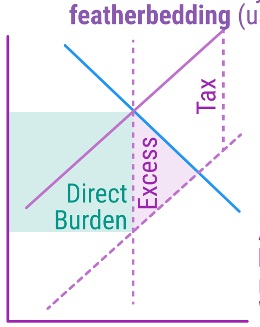
Monopsonies are monopolies but upside-down, with one ~~seller~~ buyer. **Minimum wages** →unemployment. **Unions** collectively bargain, fix surplus by **featherbedding** (useless hiring) and advertising.

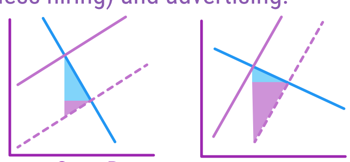
Taxation

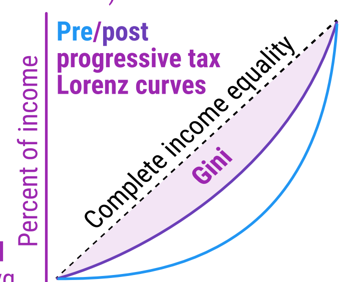
Shift supply curve. Taxes aim to be equitable and efficient.

Less elastic pays more tax. Revenue = **direct burden** and DWL = **excess burden**. Laffer curve shows diminishing direct burden.

Inequality measured by **Lorenz curve** between people and income (area = **Gini coefficient**).







Affect inequality if marginal ≠ avg. **Progressive** marginal > avg **Proportional** marginal = avg **Regressive** marginal < avg. Worst is **poll tax**, constant for everyone.

Cross-Elasticity

Good X's demand over good Y's price
Complements are goods that are used together.
Substitutes are good sthat can replace each other.

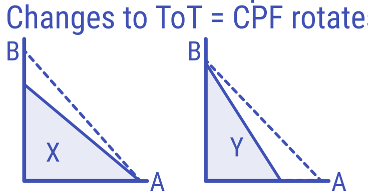
Income Elasticity

Calculate the same but instead of price use income
Inferior goods are those people buy less when rich
Necessities are staples that everyone needs

International Trade

Terms of trade = exports ÷ imports. Changes to ToT = CPF rotates.

No trade = **autarky**. Specialization allows for **gains from grade** + economies of scale, **learning by doing**.



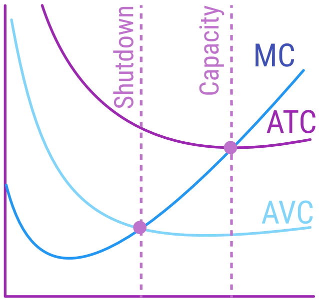
X adv. in good A, Y adv. in good B

Advantages: **comparative** (lower opportunity cost) and absolute (lower actual cost) given some resource. Comparative advantage can come from **factor endowments** (forests, oil, ...), climate, human capital, acquired skill (*learning by doing*), etc.

Supply

Short Run

Short run, some factors variable
Long run, all factors variable
Very long run, tech variable



A supplier's costs can be variable or fixed, so: **TC = TFC + TVC**.

Express wrt quantity: **ATC = AFC + AVC**

Minimized when they cross the **marginal cost** curve (ΔTC/ΔQ).

Firms always pay FC, so if MC < AVC, no point in staying open and firm temporarily **shuts down** (distinct from exiting when long-term is unviable)

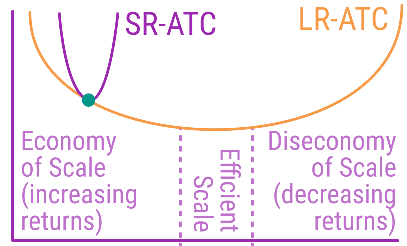
Very Long Run

Changing the LR-ATC's shape is possible. Tech changes move the curve downwards, reducing costs for every possible production level.

Long Run

All possible short-run cost curves' respective minimum points create a long-run average total cost curve. Minimized point where marginal products per dollar are equal.

LR-ATC decreases → MC (lowest SR-ATC point) decreases → returns to scale increase.



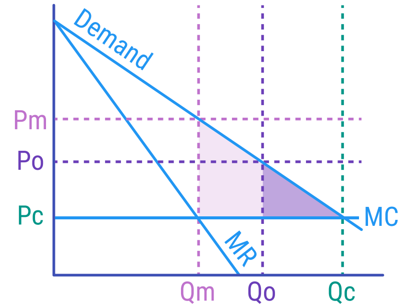
Productive Efficiency

A firm is productively efficient if it is producing at minimal cost (P = SRATC = LRATC).

A market is productively efficient if all firms have the same MC and is producing on the PPF.

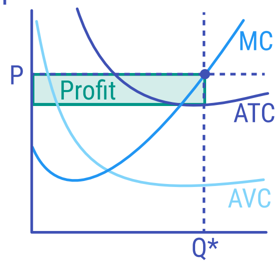
Allocative Efficiency

Economy/market is allocatively efficient if P = MC and no DWL. Competition > Oligopoly > Monopoly



Perfect Competition

Firms small wrt market, sell infinite product at market price. Products are homogenous. Easy market enter/exit.



Produce where MC = MR = P.

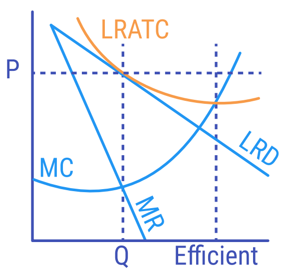
In the long run, since firms can easily exit and enter, *supply always tends to the equilibrium price.*

LRS = min(LRATC), exit if P < LRS

Market is allocatively and productiely efficient.

Monopolistic Competition

Monopolies on a differentiated product. Acts like monopoly in short run, PC in long run as enter/exit until no profit.



Always produce under "efficient" scale (i.e. excess capacity).

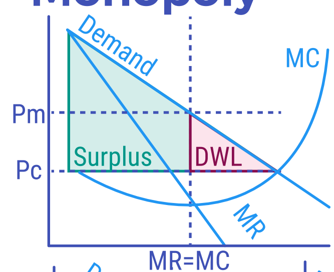
Differentiation (through adverts) decreases η, increasing profits. **Cannot know efficiency** because of differentiation

Oligopoly

Monopoly in short term, perfect competition in long term.

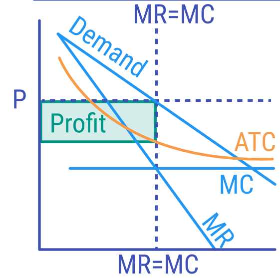
Balance between firm production and market quantity. **Explicit collusion** is illegal, usually termed **cartels**. Implicit or **tacit collusion** is not. Usually **4-firm concentration > 40%.**

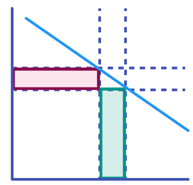
Monopoly



Set price where MR = MC. Come about **naturally** with utilities / manufacturing / economies of scale, or **created** by government / IP rights / trade groups.

Profit/Loss = Q×(P−ATC)





Any change creates **price** and **output** effects: total revenue goes up when output > price

Not allocatively efficient always productively efficient

Governments can allocatively optimize with **P = MC** but this causes losses and monopolists exit the industry. Or set **P = ATC** but that is not allocatively efficient and halts investment. **Two-part tarrifs** = fixed price + marginal price.

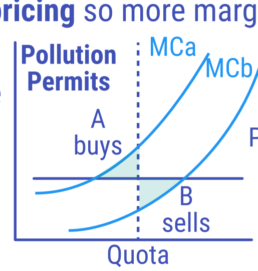
Price Discrimination

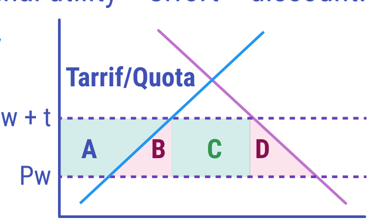
Most efficient to **perfectly price discriminate** by selling to everyone at D so entire ∫ D-ATC is profit. Usually impossible (except for airlines etc.) so **imperfect price discrimination** buckets customers. More elastic demand gets lower price. Allowing movement between buckets is **hurdle pricing** so more marginal utility = effort = discount.

Pollution

Pollution bad. Direct control usually ineffective since each firm has diff costs/benefits. Mostly useful for 100% removal of specific pollutant.

Add tangible cost to pollution: **direct taxes** (know P, ??? Q) on units or distribute **permits** (??? price, know Q) for sale. Graph as $/Q of **abatement** (reduction in pollutants). With fixed number of permits, firms trade until price of permit = equal MC of abatement for all firms.

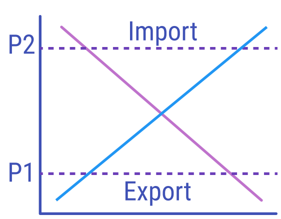




Trade Markets

Law of one price says world price same everywhere except for shipping costs.

If S > D at Pw, export diff.
If D > S, import difference.



Countries engage in **protectionism** to promote diversification, protect groups or infant industries, improve ToT, or just to make more money lmao.

Tariffs / **import quotas** have same effect. Consumers lose A+B+C+D. C is tariff revenue but quota DWL. **Voluntary export restriction** (VER) is just another quota. **Countervailing duties** are tarrifs specifically for going no u to subsidies. **Dumping** is flooding foreign market at