ECON 120
Cheat Sheet Test 3

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

Consider the amount of "helpfulness" gained from any specific thing. For supplier, this is units of **product**. For consumer, units of **utility**.

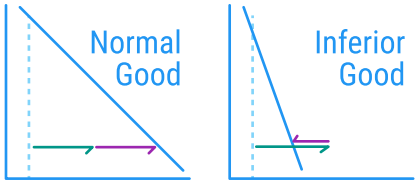
Utility ≠ value, otherwise water would be more expensive than diamonds. *Marginal utility* is more accurate: the change in total value from 0 diamonds to 1 is greater than change from 100 litres of water to 101. Thus, optimize the **marginal product/utility per dollar**.

Distinguish **accounting profit** from **econoimc profit** by taking into account economic (implicit) costs – opportunity costs incurred from not doing things.

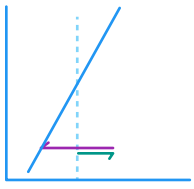
Specifically: cost of people's time, cost of money's time (interest/risk)

Consumer Behaviour

Two effects when price goes down:
substitution (always up)
income (depends on elasticity)



Inferior demand curve *can* slope up.

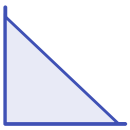


Giffen goods are super essentials.
Conspicuous consumption goods are super luxury goods.

PPFs

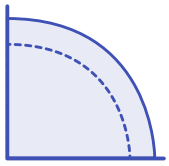
Opportunity cost = dA/dB

Careful: unemployment moves current point inwards, not the whole PPF

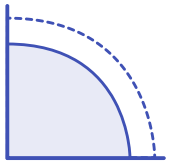


Linear PPF
Perfectly efficient resource re-allocation.
Constant opp. cost = slope.

Bowed Out PPF
Inefficient resource allocation.
Opportunity cost increases with production.



PPF Expands
Possibilities expanded.
Technological advancement, population increase.



PPF Contracts
Possibilities contracted.
Resource loss, population decrease.

PPFs bowed inwards, where opportunity cost decreases with production, aren't realistic, but would have something to do with economies of scale.

Supply and Demand

Curves are determined by sums of individual curves
Individual curves from indifference/budget curves
S+ → P-Q+ D+ → P+Q+ SD+ → P?Q+ S>D → P+Q?
S- → P+Q- D- → P-Q- SD- → P?Q- D>S → P-Q?

Game Theory

Like *Prisoner's Dilemma*, what other firms do affect profits. Firms can cooperate (tacitly or explicitly) to achieve the best outcome in **cooperative equilibria**.

Sometimes in non-cooperative games, one **dominant strategy** always finds the best outcome. These strategies tend to a **Nash equilibrium**.

If π(coop) > π(mixed), there is a coop equilibrium.

If π(cheat) > π(mixed), there is a cheat equilibrium.

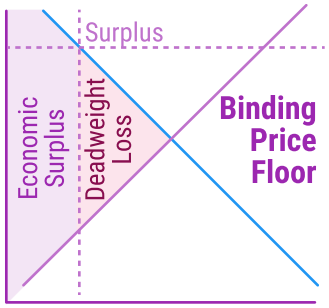
20/20	25/5	
5/25	0/0	
Eq: 0/0 (cheat)		

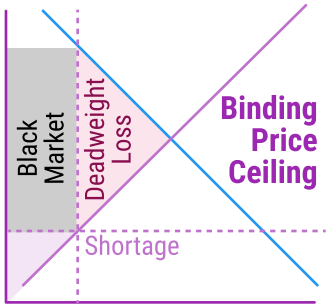
30/30	25/5	
5/25	0/0	
Eq: 30/30 (cooperate)		

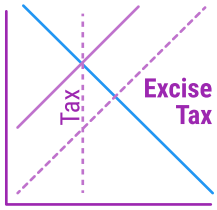
30/30	25/5	
5/25	8/8	
Eq: 8/8, 30/30 (both)		

Government Intervention

Floors bind above equilibrium, ceilings bind below







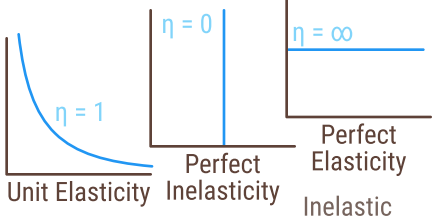
Deadweight loss proportional to difference in supply / demand elasticity

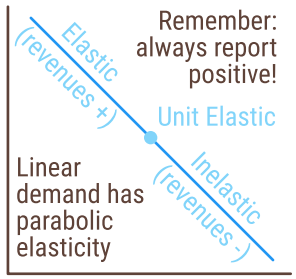
Tax incidence on suppliers and consumers depends on the proportion of the tax price line above/below the equilibrium price line.

The less elastic curve absorbs more tax burden. Just draw triangles for calculation.

Elasticity
....of demand

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

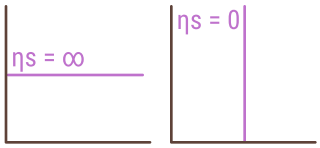




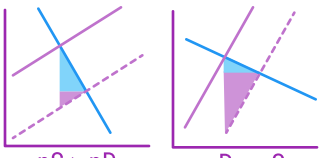
Remember: always report positive!

Inelastic means responsive to quantity.
Elastic means responsive to price.
Unit elastic is optimal.

....of supply



Supply elasticity also affects the best imperfect price discrimination options



Demand Cross-Elasticity

Given cross-elasticity of X and Y, calculate the same way but have 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-Demand 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

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Supplier Behaviour

Define time scales based on how many things are variable — in the **short run** only some factors are variable. In the **long run**, all factors are variable. In the **very long run**, the method of prooduction itself is variable.

Short Run

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

It's best to express these as quantity derivatives: **ATC** = **AFC** + **AVC**

These are minimized when they cross the **marginal cost** curve (ΔTC/ΔQ).

If AP > MP, then AP goes down towards MP.

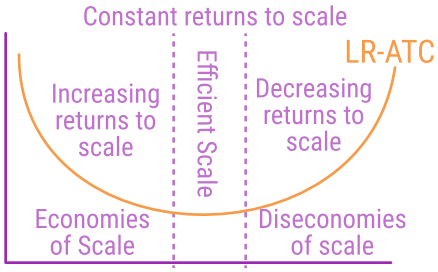
If AP < MP, then AP goes up toward MP.

Long Run

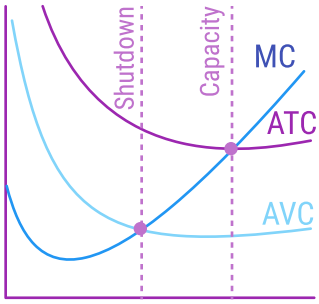
In the long run, go between SR-ATCs.

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.



As the LR-ATC decreases, the marginal cost (lowest SR-ATC point) decreases, and returns to scale increase.



Firms must pay FC no matter what, so if MC < AVC, there's no point in staying open so the firm **shuts down** (distinct from *exiting* when long-term is unviable)

Very Long Run

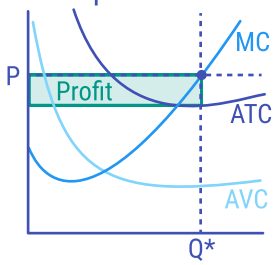
In the very long run, you can change the LR-ATC's shape. Technological advancements can move the curve downwards, reducing costs for every possible production level.

Types of Competition/Markets

Spectrum from perfect competition → oligopoly → monopolistic competition → monopoly

Perfect Competition

Firms are small wrt market, so can sell infinite product at market price. Products are homogenous; easy enter/exit.



Produce where MC = MR = P.

Profit/Loss = Q×(MC−ATC) *at (P, Q)*

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

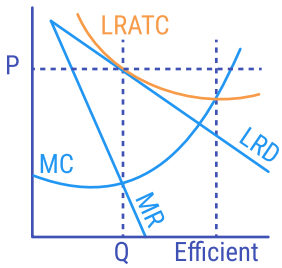
LRS = min(LRATC), exit if P < LRS

Firm graph is only externally affected by price and costs

Monopolistic Competition

Firms that have monopoly on a differentiated product.

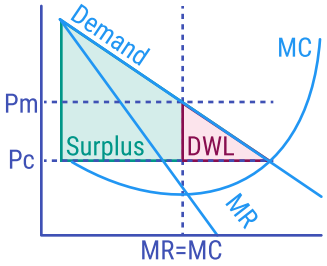
Acts like a monopoly in short run, perfect competition in long run since firms freely enter and exit until profit is zero.



Firms always produce less than "efficient" scale in the long run (i.e. with excess capacity) because demand is downward sloping and LRATC slope = demand slope.

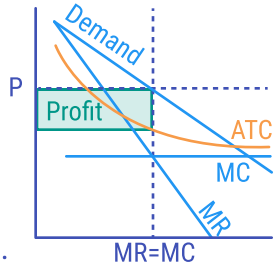
Differentiation (through adverts) makes demand less elastic, increasing profits.

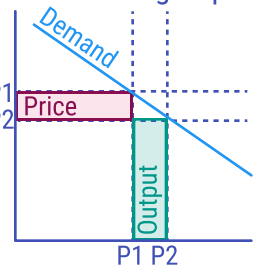
Monopoly



Monopolists can set the price, so they *set price at demand where marginal cost equals marginal revenue*

Monopolies come about **naturally** with utilities / specific manufacturing / economies of scale, or can be **created** through gvmt action / IP rights / trade groups.





Generally, down sloping ATC

Profit/Loss = Q×(P−ATC)

Change in MC creates **price** and **output** effects: total revenue goes up when output > price

Price Discrimination

It's most efficient to **perfectly price discriminate** by selling to everyone at demand so entire ∫ D−ATC is profit.

That's usually impossible (except for airlines etc.) so **imperfect price discrimination** buckets customers. More elastic demand gets lower price.

Putting effort into moving between buckets is **hurdle pricing** so people with more marginal utility put in effort.

Oligopoly

Pricing acts exactly like monopolies but split between firms, where discrimination occurs on the firm scale. The maximum profit for the industry is a perfectly price discriminated monopoly, so firms must *agree* on division of product.

This requires **collusion** since profit-seeking wishes to lower price but oligopolies maximize profit by raising price. Easiest way is **explicit collusion** which is an agreement to cooperate, usually illegal, sometimes defined as a **cartel**. It's not illegal to **tacitly collude** with price-match or other things. **Oligopolies are defined as 4-firm concentration > 40%**