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Decreasing marginal utility → captures the fact that the utility from consuming the **extra unit** of a given good **decreases** with the number of units that have been previously supplied

A fact of nature for the marginal utility is that it is **decreasing**

E.G. – 2 consumption options → soda = \$2, other = \$1 ; budget = \$4

	Soda		Other Goods	
Number of units	**Total Utility**	**Marginal Utility**	**Total Utility**	**Marginal Utility**
0	0	0	0	1
1	2	2	1	1
2	10/3	4/3	2	1
3	13/3	1	3	1
4	77/15	4/5	4	1
5	174/30	4/6	5	1
6	…	…	…	…

Table 3.1 also shows Isa's marginal and total utility for

Table 3.1: Marginal and total utility as a function of the number of goods consumed.

REMEMBER

MARGINAL BENEFIT ≥ MARGINAL COST → YES (MORE THAN OR EQUAL TO)

MARGINAL BENEFIT < MARGINAL COST → NO (LESS THAN)

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in relation to table above:

MargUtil(Soda) ≥ MargUtil(OtherGoods) → YES

MargUtil(Soda) < MargUtil(OtherGoods) → NO

(Marginal Utility = Opportunity Cost – what you're giving up)

Cost-Benefit principle → an action should be taken if the marginal benefit is greater than the marginal cost (if it is equal, indifferent – always take the action)

Quantity demanded → represents the quantity of a given good or service that maximises the utility experienced by the individual consuming it (causes demand curve to shift - relates to changes in **anything but** the selling price of the actual unit)

Demand curve → the relationship between the price of a good or service and the quantity demanded of that good or service (a movement along the demand curve – relates to changes in the **price** of a good, to see how much is now demanded)

	Theatre	*Stadium*
Theatre	20 , 10	0 , 0
Stadium	0 , 0	2 , 15

Options can be set out like:
(Theatre, Stadium); (Stadium, Theatre)
(Stadium, Stadium); (Theatre, Theatre)
(0, 0); (0, 0) – (2, 15); (20, 10)

Nash Equilibrium → a play of the game where each strategy is a best reply to the other
(each player is responding to the other – like a mirror)

Occurs when each player chooses a strategy that gives him/her a higher payoff, given the strategy by the other in the game
**In Nash Equilibrium NO player has an incentive to deviate**

It is a reasonable prediction – self-enforcing, even though it doesn't necessarily maximise collective interest (example has 2 options, both theatre (20, 10) or both stadium (2, 15)

How to choose?
Theatre is ore fair in terms of distribution of utils and gives collectively more (20+10 = 30, 2+ 15= 17) BUT this is an open-ended question

Coordination problem → they could mis coordinate when choosing blindly

NOTE – Nash equilibrium will always work – it contains DS and Iterated Elimination of DS
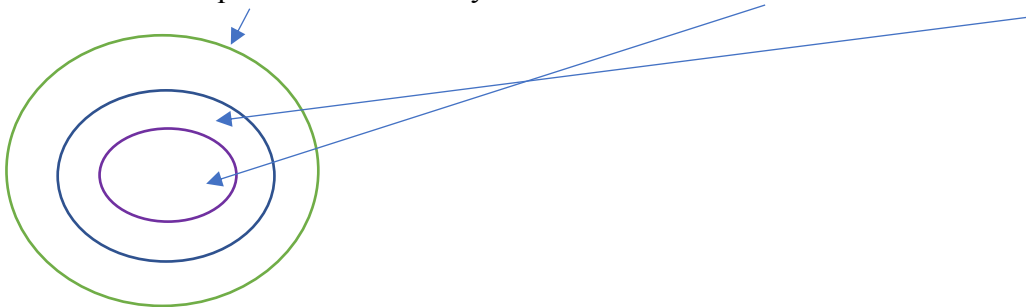
Think of the Prisoner's Dilemma → equilibrium is inefficient, and PD has strong equilibrium as it is in pure strategies

DS and Rationality
In a game of 10 participants, all choosing a number less than 100, that they think will be 2/3 of the sum of all numbers
- They will not just choose a random number, nor will they choose 67 as it is dominated (2/3 of 100 = 67)
- Since they believe everyone else is rational – they will not pick a number above 2/3 of 67
- This will go on until all numbers are eliminated but **zero**
- This game is called 'beauty contest' – an ideal tool to study whether individuals reason in steps and how many iterated levels subjects actually apply
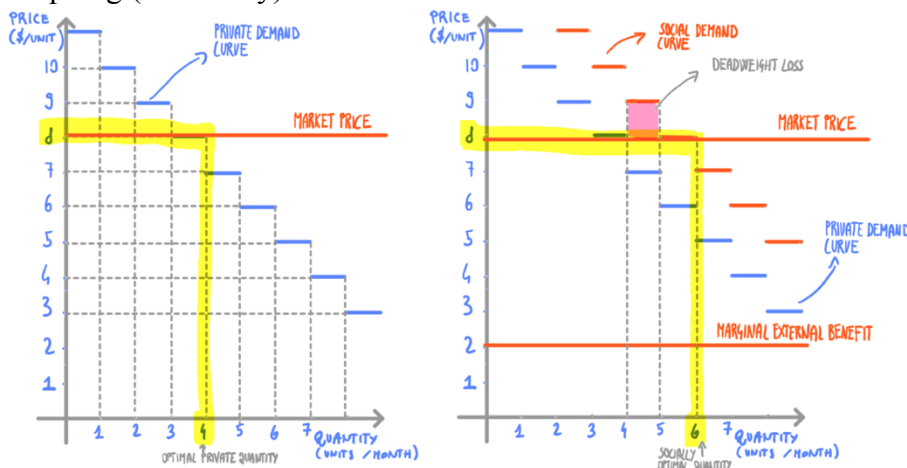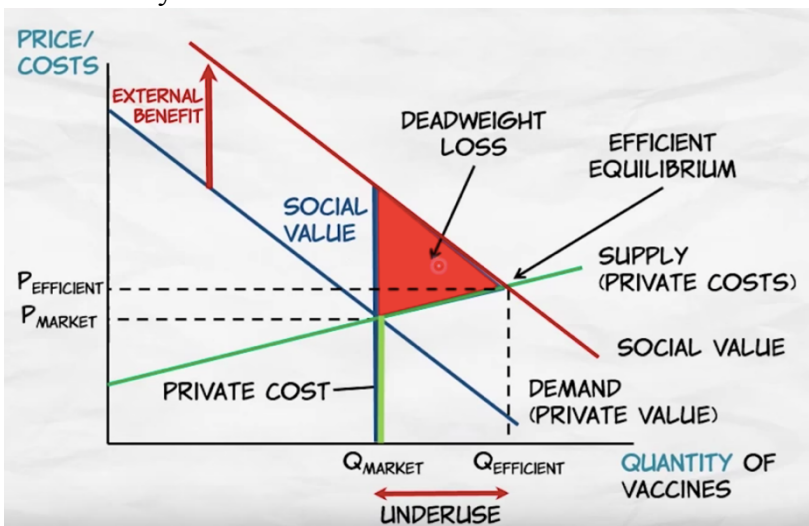
EXTERNALITIES

(Imperfect market)

Externalities = external costs / benefits accrued to someone that isn't the consumer

Positive consumption externality → a benefit accrued to someone who is not involved in the consumption of a given good

Graphing (Discretely)

Continuously

(good youtube video → https://www.youtube.com/watch?v=1G-_HL9ZE24)

Examples of production consumption externalities → vaccinations, education, social networking, fire protection services

Note, there is a deadweight loss → solution could be private negotiation (no government)

IF negotiation doesn't work, government can impose a tax equal to the social value to maximise surplus)