Preferences

- How do consumers choose which bundle in the budget set to consume?
- In the rational choice model, we assume that consumer's are able to rank alternative bundles
- Given the choice between any two bundles, our consumers must be able to say which they'd prefer

Notation

Consumption bundles

$$\left.\begin{aligned} (x_1, x_2) &= X \\ \text{or } (y_1, y_2) &= Y \\ \text{or } (x_1', x_2') &= X' \end{aligned}\right\} \text{big letters mean bundles}$$

x_1: quantity of good 1

x_2: quantity of good 2

- We say that X is strictly preferred to Y if a consumer chooses X over Y when both are available

- $X \succ Y$

this is not a "greater than" sign

- We say that X is indifferent to Y if the consumer doesn't care if they get X or Y

$X \sim Y$

- If a consumer either strictly prefers X to Y or they are indifferent, we write:

$X \succsim Y$ (weak preference)

Relationship between $\succ, \sim, \succsim$

- Suppose $X \succsim Y$ and $Y \succsim X$. Then: $X \sim Y$
- Suppose $X \succsim Y$ and Y is not $\succsim X$. Then: $X \succ Y$
- strict preference and indifference can both be described in terms of $\succsim$

Rationality assumptions

1. Preferences are complete
2. Preference are reflexive
3. Preferences are transtive

1. Completeness

Preferences are complete if for any bundles X and Y

Either: (a) $X \succ Y$ (b) $Y \succ X$ (c) $Y \sim X$

(a) $X \succsim Y$ (b) $Y \succsim X$ (c) Both

- Consumers can rank any two alternatives

2. Reflexivity

Preferences are reflexive if $X \succsim X$ $(X \sim X)$

- Consumers are indifferent between bundles that are identical to one another

3. Transitivity

Suppose there are 3 bundles X, Y, Z

If $X \succ Y$ and $Y \succ Z$

Transitivity means $X \succ Z$

Transitivity means preferences are "consistent"

- Money-pump

  Suppose a person's preferences are <u>not</u> transitive

  There's some X, Y, Z such that $X \succ Y$, $Y \succ Z$ and $Z \succ X$

  1. Person has X

     I offer that person a Z in exchange for X and \$0.01

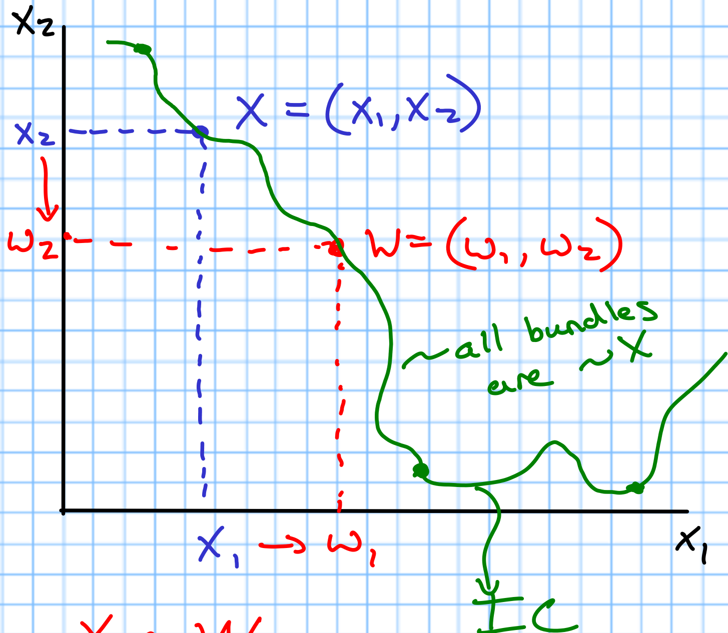
  2. I offer them a Y in exchange for their Z and \$0.01

  3. I offer them an X

  → The person has X just like when we started, but they also lost 3 cents

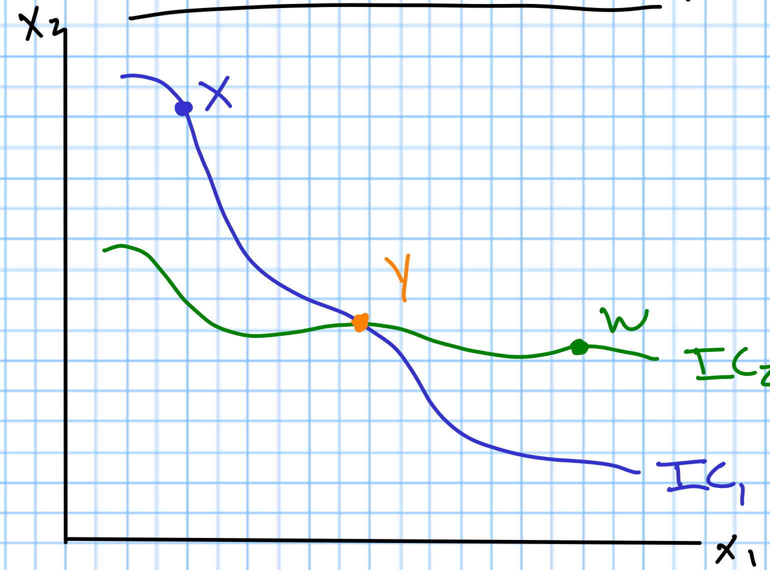
- We don't observe money pumps in the real world

Indifference curves (IC)



$X \sim W$

Consider 2 different IC for a consumer. Can those ICs intersect?



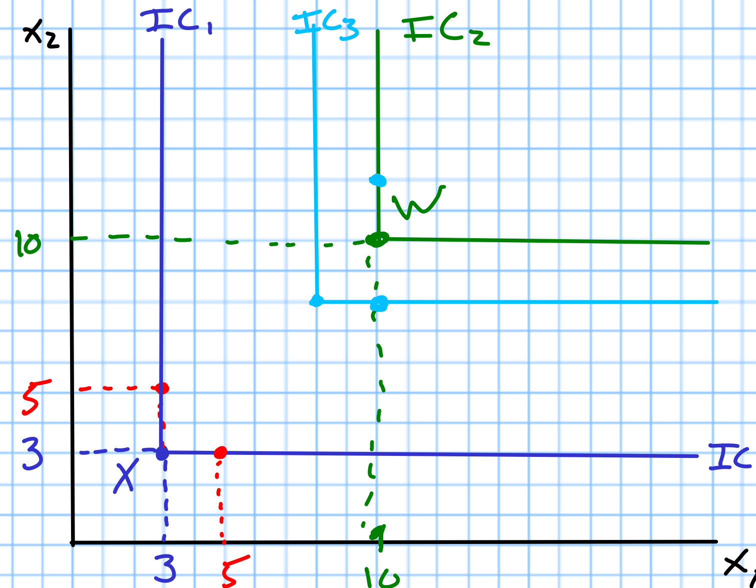
$X \sim Y$ (on the same IC)
$Y \sim W$ (on the same IC)
$X \nsim W$ (not the same IC)
$\rightarrow$ Either $X \succ W$
or $W \succ X$

$\left.\begin{array}{l} X \succ W \\ W \sim Y \\ Y \sim X \end{array}\right\}$ Transitivity: $X \succ X$

$\rightarrow$ This violates reflexivity
IC for rational preferences cannot intersect

Example

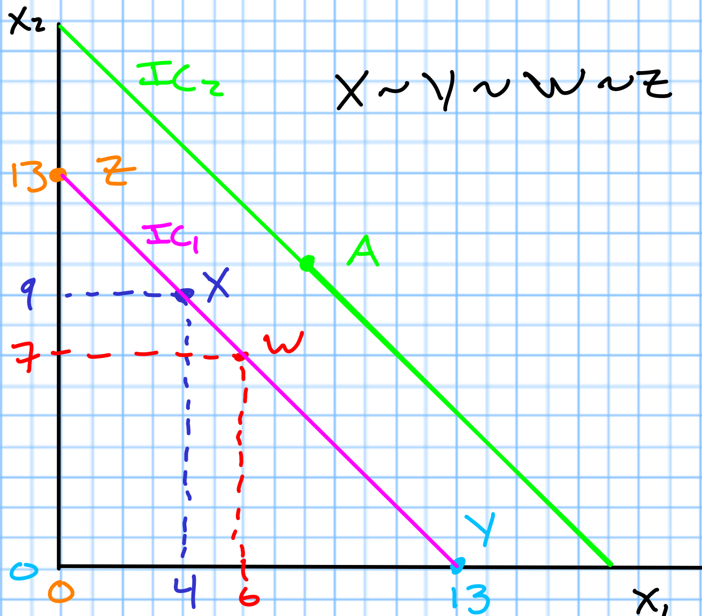
- Perfect complements



(Leontief peferences)

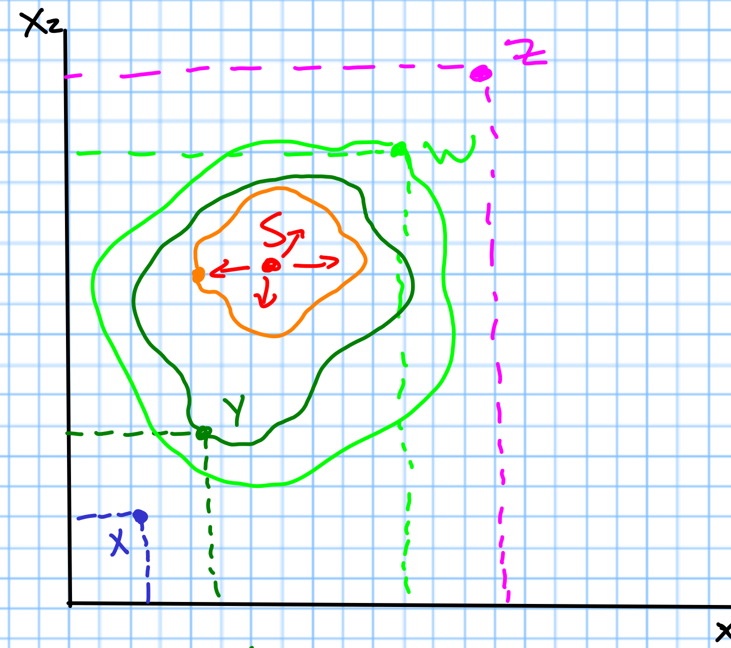
- Perfect substitutes

$X \sim Y \sim W \sim Z$



- Satiation

$S \succ W, \; S \succ Y$



$Y \succ X$

$W \succ Z$

Well-behaved preferences

- Simplifying assumptions that will make the math easier
- Note: None of the main results that we describe depend on these assumptions

Preferences are well-behaved if:

1. Monotonic
2. Convex

① Preferences are monotonic if a bundle with more of both goods is always preferred over a bundle with fewer goods

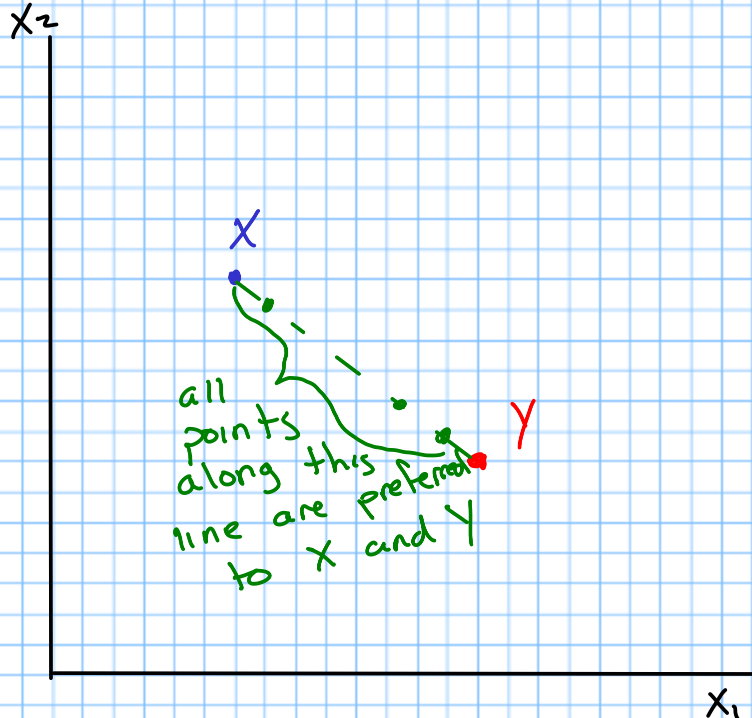
- "More is better"

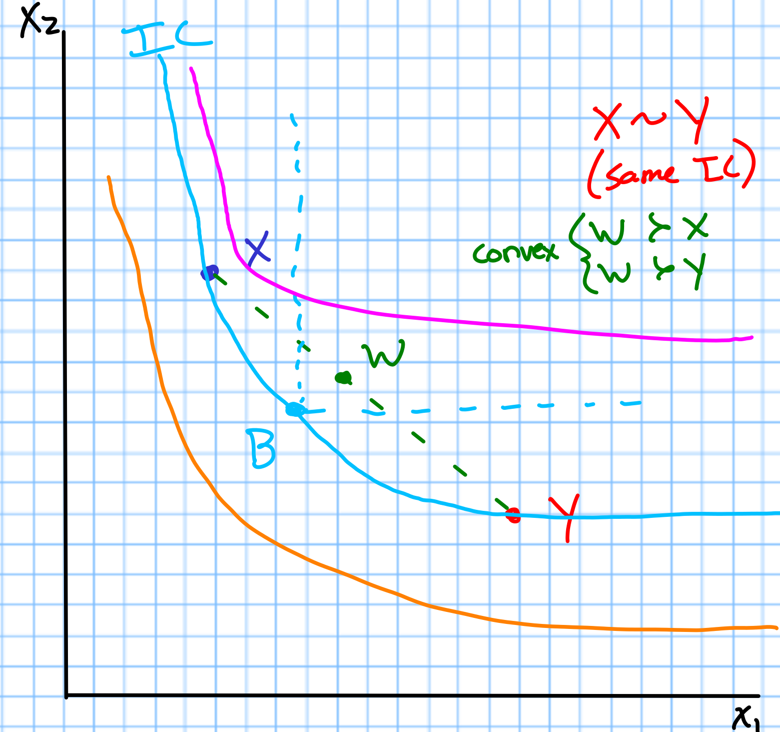
② Convexity

- Mixtures are preferred to extremes

Example: 3 bundles:

$$\left.\begin{array}{l} x = (10, 0) \\ y = (0, 10) \\ z = (5, 5) \end{array}\right\} \begin{array}{l} z \succ x \\ z \succ y \end{array}$$





ICs are for well-behaved preferences