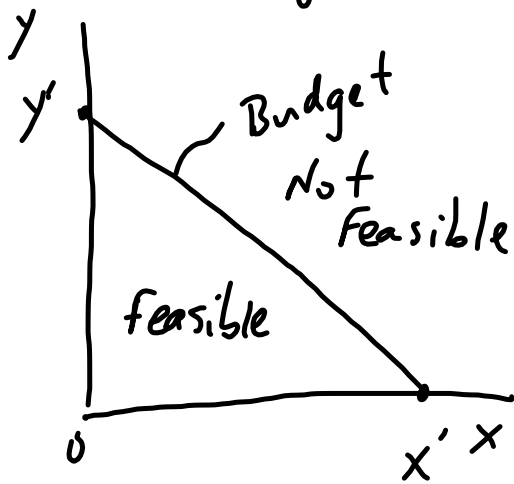


Test 4 - final exam slot  
MW 2 PM.

- like Test 1-3 - last test coverage.

frontiers Ch 21 + 22 & 20 time permitting

- human behavior - optimizing
- maximize utility
- given budget (constraint)

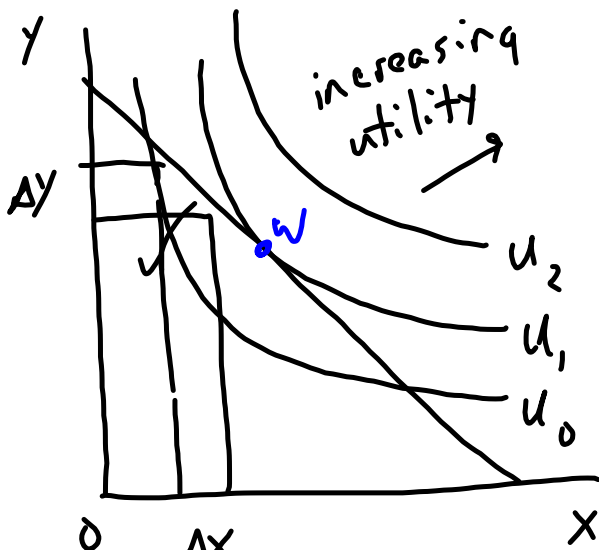


$$I = P_x \cdot X + P_y \cdot Y$$

$$\frac{I}{P_x} = X \quad \frac{I}{P_y} = Y$$

$$I = 26,000$$

$$I_{ns} = \frac{12,000}{14,000}$$



utility from consuming goods

$$U = U(X, Y)$$

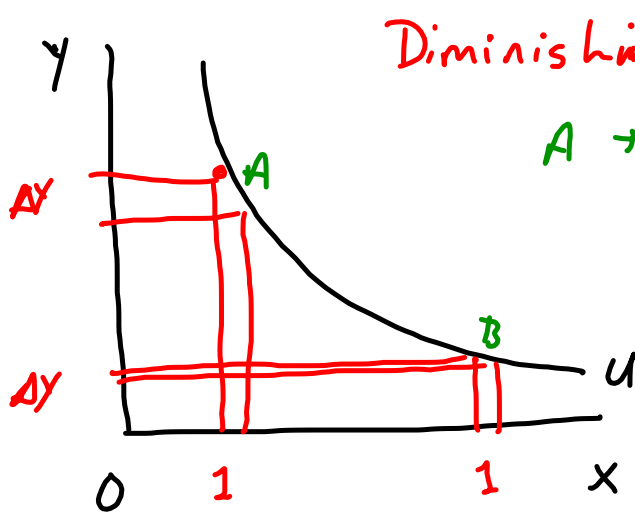
preferences - subjective willingness to trade x for y

$\text{slope } \frac{\Delta Y}{\Delta X} = \frac{P_x}{P_y}$ 
 $\left. \begin{array}{l} P_x = \Delta Y \text{ to get } \Delta X \\ P_y = \Delta X \text{ " } \Delta Y \end{array} \right\} \text{Objective market tradeoff}$

- variety is better  $\rightarrow$  mix of  $x + y$

$$U_2 > U_1 > U_0$$

W - max utility with budget



Diminishing substitution

A → have a lot of y  
 so willing to trade  
 to get 1 unit of x

B - have only  
 little y +  
 so not willing to  
 trade to get  
 more x

classical economic story

max utility given budget +

- all optimizing decisions
- errors arise relative to theory

- Behavioral Economics } Cass  
→ econ & psych } Sunstein  
Nudge

## Why errors?

- information is costly + maybe delayed.
- bounded rationality (Simon)
  - make decisions on info you have or get easily
  - less than full info
- substitute rules of thumb
- heuristics - Tversky  
Kahneman ]

representativeness -

new setting → looks like  
something done before  
- focus on properties that  
represent new decision from  
old one

availability - reduce dimension  
of decision.

problems

Time inconsistency

- decision at time 1  
not good at time 2.

"present bias preferences"

- rebates → item sale at Price X

$$\text{Price X} = \text{Sell Price} - \text{Rebate}$$

claim rebate ←

failure to claim rebate is  
time inconsistent



- rebates
- inappropriate dietary choices
- study or not
- regret in future.
- consequences → addiction
  - excessive debt - 2008  
recession
  - mortgage crises
- inform consumers  
with info - Nudge

Asymmetric Info - seller better informed.

- adverse selection - wrong stuff for sale

used cars - good

Prob(good) < 1 Pr G

Prob(bad) < 1 Pr B

Value = 10K good  
" = 5K bad.

$$Pr G + Pr B = 1$$

$$0.5 \quad 0.5$$

Expected Value

$$EV = 0.5 \cdot 10,000$$

$$+ 0.5 \cdot 5,000$$

$$= \$7,500$$

market price \$ 7,500 value at \$10,000  
 if hold good cars from market

$$P_r G \downarrow < 0.5 \quad EV \downarrow$$

$$P_r B \uparrow > 0.5$$

$$P_r G = 0.4 \quad EV = 0.4 \cdot 10,000 +$$

$$P_r B = 0.6 \quad \quad \quad 0.6 \cdot 5,000$$

$$= \$7,000$$

more good cars off market  $\downarrow$   $EV \downarrow$   $\rightarrow$  only bad cars available.

- offer warranty on used car
  - ↳ signal of quality - warranty costs lower for good car
- car of type X (brand, age, mileage, etc)  
price higher at dealer
- signal as solution to asymmetric info - signal is costly  
↓ cost ↑ as quality ↓ .

## Principal-Agent Contract

Principal hire Agent → outcome  
+ payment but not process

- real estate → Owner hires Agent to sell building, but does not define process
- comp is % of price  
(tied to outcome)