Theory of consumer choice

Affordability → Tools: Budget Line will be used to describe affordability

Preference (What a consumer wants) → Indifference curve will be used to describe consumer's preferences

Choice → optimization: Given budget and preference, how a rational buyer optimally chooses?

BUDGET LINE

Consider 2 goods: X, Y

P_X = price of good X

P_Y = price of good Y

M = his money income

Ex:

$P_X = 100$ baht/unit
$P_Y = 50$ baht/unit
$M = 2000$ baht/wk

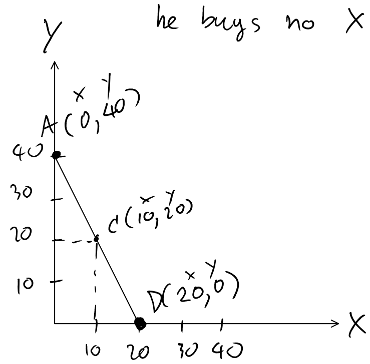
X = clothes
Y = Food

$\frac{M}{P_X} = \frac{2000}{100} = 20$ units of good X.

→ maximum amount of X he could afford if he buys no Y.

$\frac{M}{P_Y} = \frac{2000}{50} = 40$ units of good Y

→ maximum amont of Y he could afford if he buys no X.



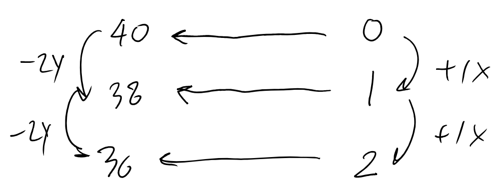
$P_X = 100$
$P_Y = 50$
$M = 2000$

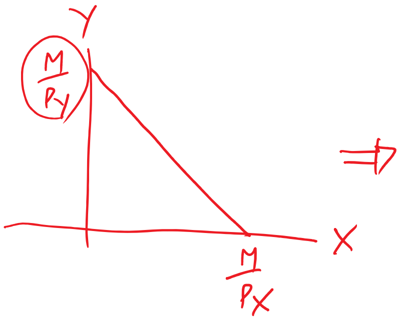
1. AD is so called "a budget Line":
   - showing all affordable choices he could pursue and spend up his income.
2. Slope of AD = −2

   (−2) → opportunity cost of good X measured in term of good Y forgone.
3. $Y = 40 - 2X$ → Budget line equation

(40 ← 0)

equation





$\Rightarrow$

$$\text{Slope} = -\frac{\frac{M}{P_y}}{\frac{M}{P_x}} = -\frac{\cancel{M}}{P_y}\cdot\frac{P_x}{\cancel{M}} = -\frac{P_x}{P_y}$$

BL Equation:

$$\boxed{Y = \frac{M}{P_y} - \frac{P_x}{P_y}X}$$

max. of Y he can afford if he buys no X

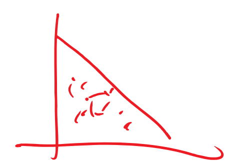
- relative price
- price ratio
- opp. cost of good X

$$\boxed{P_x\cdot X + P_y\cdot Y = M}$$

expenditure on good X — expenditure on good Y — income

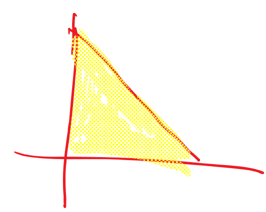
Inside the BL:

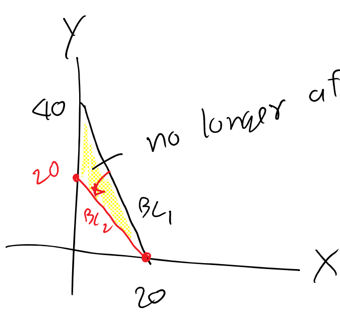
$$\boxed{P_x\cdot X + P_y Y < M}$$



$$\boxed{P_x\cdot X + P_y\cdot Y \le M}$$

BUDGET SET





no longer affordable

B/F		A/F
$P_x = 100$		$P_x = 100$
$P_y = 50$	$\longrightarrow$	$P_y' = 100$
$M = 2000$		$M = 2000$

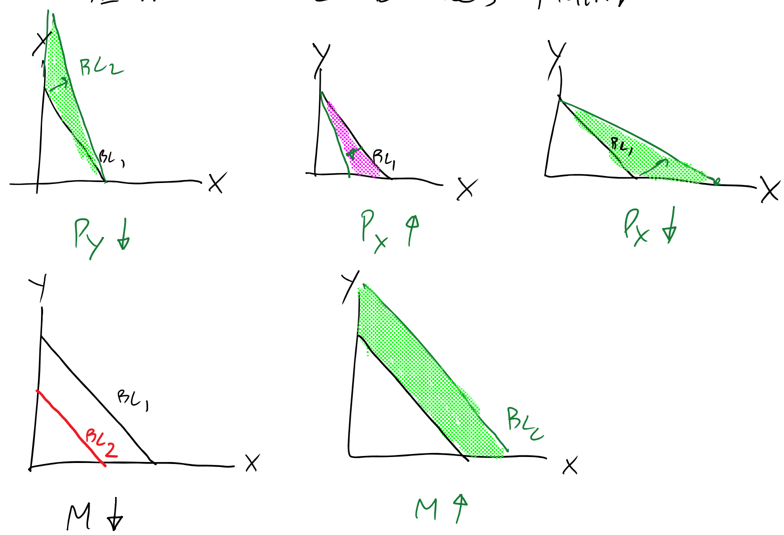
OLD $\rightarrow -\frac{P_x}{P_y} = -\frac{100}{50} = -2$

NEW $\rightarrow -\frac{P_x}{} = \frac{-100}{} = -1$

BL swings inward from BL_1 to BL_2

NEW → $-\frac{P_x}{P_y'} = \frac{-100}{100} = -1$

SLOPE OF BL becomes Flatter



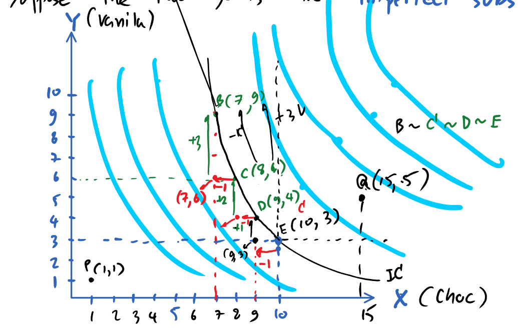
Indifference curve : a collection of consumption baskets that give a consumer same level of satisfaction.

Consider 2 goods : X (chocholate icecream)

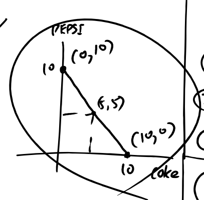
Y (vanila icecream)

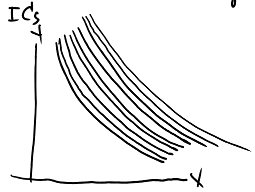
Suppose the two goods are imperfect substitutes,

units: scoops/wk



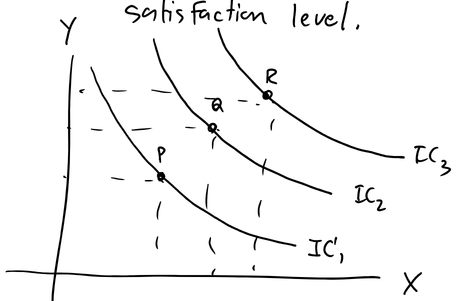
Fact#1 on consumption space, there are many many IC's





> A collection of IC's is called an indifference map.

Fact#2 The higher the IC's towards NE direction, the higher satisfaction level.



$U_{on\ IC_3} > U_{on\ IC_2} > U_{on\ IC_1}$

Fact#3 If good x and good y are "good", then IC will be downward sloping!

(A) when x and y are imperfect substitutes

(B) when x & y are perfect substitutes

Assumptions about a consumer's preference

① He can rank his preferences.

If we present him w/ 2 baskets : basket A & basket B

he must be able to give us one of three possible replies : $\sim$

utility

① A is preferred to B : $A \succ B \iff U(A) > U(B)$

② B is preferred to A : $B \succ A \iff U(B) > U(A)$

③ A and B are indifferent. : $A \sim B \iff U(A) = U(B)$.

② He loves variety of goods (mixture of goods)

Ex: A (0, 100) B(100, 0) C (60, 40)

$C \succ A$

$C \succ B$

③ He prefers "more of goods" rather than "less of goods"

Note there are 3 types of good :

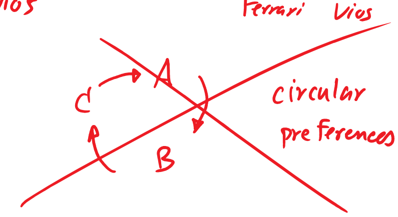
- good x is good if more is better.
- good x is bad if less is preferred to more.
- good x is neuter if having more or having less does not affect utility.

④ His preference is "consistent".

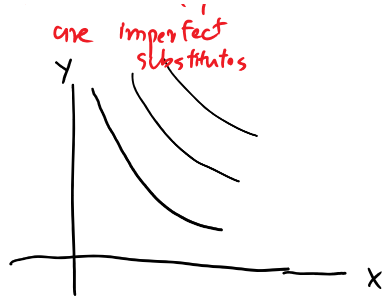
> If $A \succ B$ and $B \succ C$, then, to be consistent, $A \succ C$.

Ferrari Mercedes Mercedes Vios Ferrari Vios

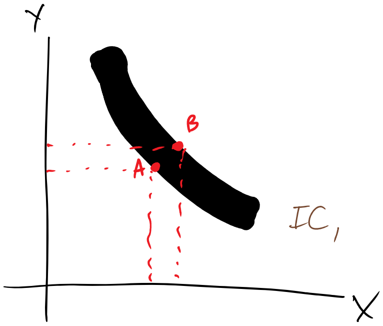
$A \rightarrow B \rightarrow C$



Remark



Fact #4 an IC cannot be thick. Put it differently, a IC is a thin line.



A contradiction arises when we allow for thick IC!

STUDENT 1

since A and B are on the same IC, it must be the case that $A \sim B$

STUDENT 2

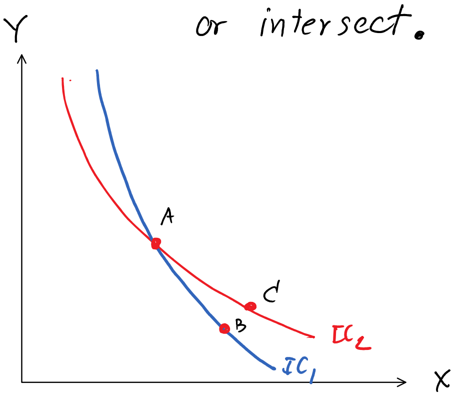
since B has more of x & y, then, by more-is-better assumption, it must be that $B \succ A$

Either $A \sim B$ or $B \succ A$ is correct. Both statements cannot be true at the same time. This is a contradiction which arises when we allow for thick IC!!!

To avoid such contradiction, do not make a thick IC.

14.03.19

Fact #5 ICs (from the same indifference map) cannot cross or intersect.



To see why we should not make them cross, let's do a proof so called " Proof by contradiction ":

let them cross and see what will go wrong!

STUDENT 1

on IC_1: since A and B are on the same IC, namely, IC_1, then $A \sim B$.

on IC_2: since A and C are on the same IC, namely, IC_2, then $A \sim C$.

STUDENT 2

Since C has more of x & y compared to B, then, by more-is-better assumption, $C \succ B$

on the same IC, namely, IC_2, then $A \sim C$.

By transitivity, If $A \sim B$ and $A \sim C$, then, $\underline{\underline{B \sim C}}$.

assumption, $\underline{\underline{C \succ B}}$.