Thursday, March 23, 2017 9:31 AM

TO GET MORE UNDERSTANDING ABOUT $\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$ (RATIONAL SPENDING RULE)

LET'S CONSIDER THE FOLLOWING EXAMPLE :

SUPPOSE P_x = 2 BAHT / UNIT
P_y = 1 " "
M = 9 BAHT / DAY

X	TU_x (UTILS)	MU_x	MU_x/P_x ($P_x=2$)	Y	TU_y (UTILS)	MU_y	MU_y/P_y ($P_y=1$)
1	10	10	5	1	8	8	8
2	18	8	4	2	15	7	7
3	24	6	3	3	21	6	6
4	28	4	2	4	26	5	5
5	31	3	1.5	5	30	4	4
6	33	2	1	6	33	3	3

PROBLEM : MAX TU (X, Y)
S.T. BUDGET CONSTRAINT

FIRST ROUND IN CHOOSING BETWEEN 1^{ST} UNIT OF X & 1^{ST} UNIT OF Y, HE SHOULD BUY 1^{ST} OF Y B/C

$$\frac{MU_y}{P_y} = 8 > \frac{MU_x}{P_y} = 5$$

TU => 8 UTILS
(X,Y) => 1Y
MONEY LEFT => 9 − 1 = 8 BAHT

SECOND ROUND IN CHOOSING BETWEEN 1^{ST} UNIT OF X AND 2^{ND} UNIT OF Y, HE SHOULD BUY 2^{ND} OF Y B/C

$$\frac{MU_y}{P_y} = 7 > \frac{MU_x}{P_x} = 5$$

TU => 8 + 7 = 15 UTILS
(X,Y) => YY
MONEY LEFT => 8 − 1 = 7 BAHT

THIRD ROUND SHOULD HE BUY 1^{ST} UNIT OF X OR 3^{RD} UNIT OF Y ?

HE SHOULD BUY 3^{RD} UNIT OF Y B/C $\frac{MU_y}{P_y} = 6 > \frac{MU_x}{P_x} = 5$.

TU = 8 + 7 + 6 = 21 UTILS
(X,Y) => YYY
MONEY LEFT => 7 − 1 = 6 BAHT

FOURTH ROUND SHOULD HE BUY 1^{ST} UNIT OF X OR 4^{TH} UNIT OF Y ?

SINCE $\frac{MU_x}{P_x} = 5 = \frac{MU_y}{P_y} = 5$, THEN HE CAN BUY BOTH OF THEM ! (MONEY PERMITTED)

$TU = \underbrace{8+7+6}_{21} + 10 + 5 = 36$ UTILS

$(x, y) \Rightarrow$ YYYY + X

MONEY LEFT $= 6 - 2 - 1 = 3$ BAHT

$\boxed{\text{FIFTH ROUND}}$ SHOULD HE BUY 2^{ND} UNIT OF X OR 5^{TH} UNIT OF Y ?

SINCE $\frac{MU_x}{P_x} = 4 = \frac{MU_y}{P_y} = 4$,

THEN HE CAN JUST BUY BOTH OF THEM.

$TU = \underbrace{8+7+6+10+5}_{36} + 8 + 4 = 48$ UTILS

NOTICE THAT ONCE MONEY IS SPENT UP, $\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$!

Q: WHY $(3, 3)$ (x, y) IS AN INFERIOR OPTION ?

$(x^*, y^*) = (2, 5)$

W/ $(3,3) \Rightarrow TU = TU_x + TU_y$

$= 24 + 21$

$= 45$ UTILS

BUDGET $= 2 \cdot 3 + 1 \cdot 3 = 6 + 3 = 9$ BAHT

OBSERVE THAT W/ $(3,3)$, $\underset{(=3)}{\frac{MU_x}{P_x}} < \underset{(=6)}{\frac{MU_y}{P_y}}$

SINCE $\underset{(6)}{\frac{MU_y}{P_y}} > \underset{(3)}{\frac{MU_x}{P_y}}$, THEN HE SHOULD BUY MORE OF Y AND LESS OF X IN ORDER TO IMPROVE HIS UTILITY!

$(3, 3)$ (x, y) $\xrightarrow{-6,\ +9}$ $(2, 5)$ (x, y) $\quad \boxed{\frac{MU_x}{P_x} = \frac{MU_y}{P_y}}$

TU = 45 UTILS $\quad$ = +3 $\quad$ TU = 48 UTILS

NET GAIN FROM THIS MOVE.

RATIONAL SPENDING RULE: TO MAXIMIZE UTILITY SUBJECT TO A BUDGET CONSTRAINT, HE SHOULD SPEND SUCH THAT...

ONCE HE SPENT UP HIS BUDGET, PER BAHT SPENT ON X AND PER BAHT SPENT ON Y MUST DELIVER THE SAME MARGINAL UTILITY.

IN OTHER WORDS, MARGINAL UTILITY PER BAHT SPENT ON X $\left(\frac{MU_x}{P_x}\right)$ MUST BE EQUAL TO $=$ MARGINAL UTILITY PER BAHT SPENT ON Y $\left(\frac{MU_y}{P_y}\right)$

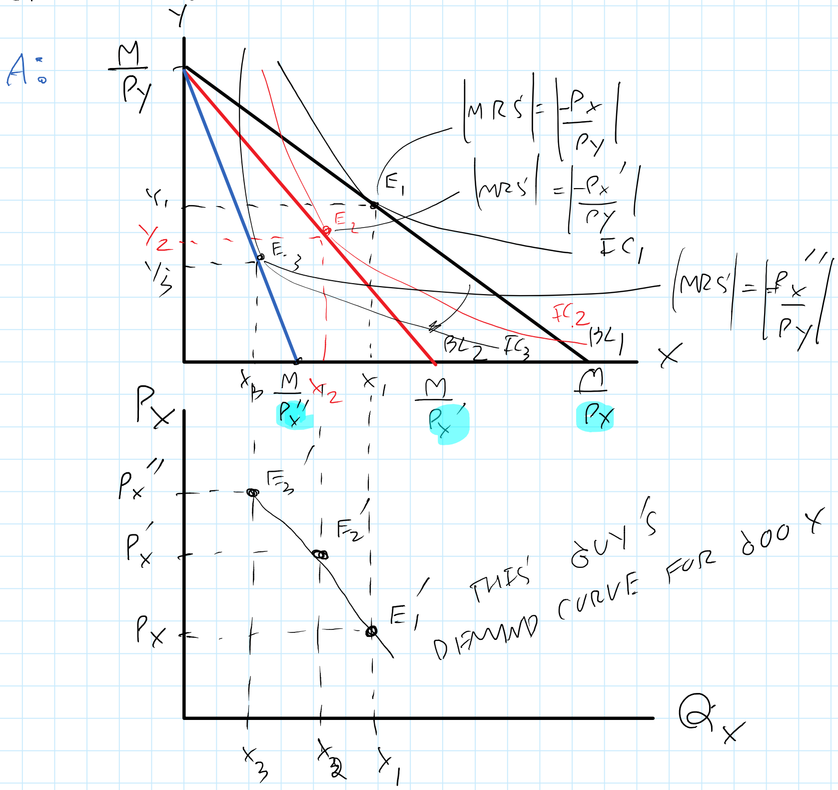
BAHT SPENT ON X

$\left(\frac{MU_x}{P_x}\right) = $ BAHT SPENT ON Y $\left(\frac{MU_y}{P_y}\right)$

"THE UTILITY MAXIMIZING RULE"

Q: WHERE DOES AN INDIVIDUAL DEMAND CURVE COME FROM?

A:



CONSIDER 2 GOODS: X, Y

P_x, P_y, M

NEXT, P_x ↑ FROM P_x TO P_x'.

FURTHER, P_x ↑ FROM P_x' TO P_x''.