SUMMARY

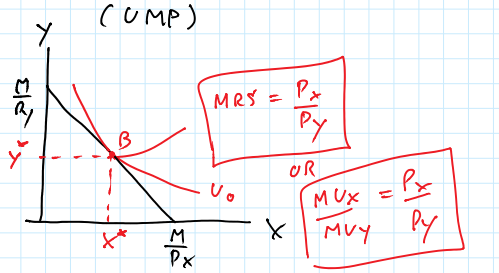
CONSUMER

MAX $U(x, y)$

S.T. $P_x x + P_y y = M$

$x^* = ?$
$y^* = ?$ → MAXIMIZE UTILITY

"UTILITY MAXIMIZATION PROBLEM" (UMP)



$MRS = \frac{P_x}{P_y}$

OR

$\frac{MU_x}{MU_y} = \frac{P_x}{P_y}$

OR

$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$

"RATIONAL SPENDING RULE"

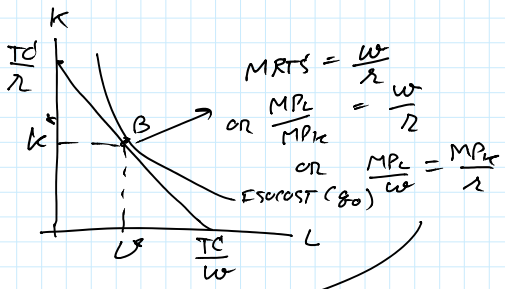
PRODUCER

MIN $TC = w \cdot L + r \cdot k$

S.T. $Q = Q_0$.

$L^* = ?$
$k^* = ?$ → MINIMIZE TOTAL COST

"COST MINIMIZATION PROBLEM"



$MRTS = \frac{w}{r}$

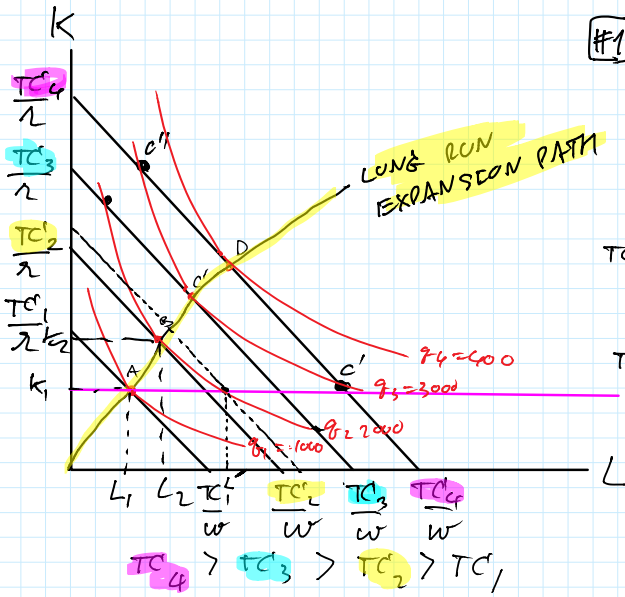
OR $\frac{MP_L}{MP_K} = \frac{w}{r}$

OR $\frac{MP_L}{w} = \frac{MP_K}{r}$

ISOCOST ($\bar{g}_0$)

"COST MINIMIZING RULE"

INFLEXIBILITY OF SHORT RUN PRODUCTION



$TC_4 > TC_3 > TC_2 > TC_1$

#1 AT A, B, C', AND D,

$MRTS = \frac{w}{r}$ OR $\frac{MP_L}{MP_K} = \frac{w}{r}$

OR $\frac{MP_L}{w} = \frac{MP_K}{r}$.

[LEAST-COST COMBINATION]

TO PRODUCE $q_1 = 1000$ → USE OF (L_1, k_1) AT A MINIMIZES TOTAL COST.

TO PRODUCE $q_2 = 2000$ → USE OF (L_2, k_2) AT B MINIMIZES TOTAL COST

$q_3 = 3000$ →

$q_4 = 4000$ →

LONG RUN EXPANSION PATH: A COLLECTION OF ALL LEAST COST COMBINATION GIVEN OUTPUT DESIRED TO PRODUCE.

MESSAGE: TO PRODUCE A CERTAIN AMOUNT OF COOKIE,

COST IN THE LONG RUN ≤ COST IN THE SHORT RUN

AS MANAGER HAS A GREATER FLEXIBILITY TO MIX L AND k TO MINIMIZE HIS

TOTAL COST.

NEXT, WE ARE GOING TO DERIVE:

- LAC (LONG RUN AVERAGE COST) = $\frac{LTC}{Q}$ $\frac{\$}{\text{🐷}}$
- LMC (LONG RUN MARGINAL COST) = $\frac{\Delta LTC}{\Delta Q}$