REPASO PARCIAL 2

Tuesday, February 14, 2023 2:52 PM

O.P.

MAX U_i s.a $U_{-i} \geq \bar{U}$

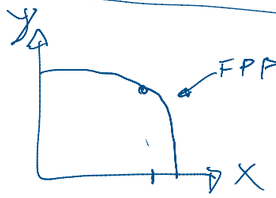
FACTIBLE → FPP ⇒ $y = 1 - X$

FPP

MAX $f_x(l_x, k_x)$ s.a. $f(l_y, k_y) = \bar{y}$

$l_y + l_x = \bar{L}$

$k_x + k_y = \bar{K}$



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① CON A, B

BIEN H, C

$U_A(h_A, C_A)$

$U_B(h_B, C_B)$

$\bar{L}_A = 1$

$\bar{L}_B = 1$

$f(l)$

$\theta_1 = 1/2 = \theta_2$

ⓐ $(h_a^*, C_A^*, h_B^*, C_B^*, l^*)$ → ASIGNACION

FACTIBLE $\begin{cases} h_a + h_B + l \leq 2 \\ C_A + C_B \leq f(l) \end{cases}$

ⓑ DEFINA O.P.

$(h_a^*, C_a^*, h_b^*, C_b^*)$ ES UN O.P. SI → FACTIBLE

NO EXISTE $(\bar{h}_a, \bar{C}_a, \bar{h}_b, \bar{C}_b)$ T.Q.

$\forall_i \; U_i(\bar{h}_i, \bar{C}_i) \geq U_i(h_i^*, C_i^*)$

y para al menos uno (i^*)

$$U_{i^*}(\bar{h}_i, \bar{C}_i) > U_{i^*}(h_i^*, C_i^*)$$

$$\max_{h_a, C_a, h_b, C_b, \ell} U_A(h_a, C_a) \quad \text{s.a} \quad U_B(h_b, C_b) \geq \bar{U}$$

$$\text{Factible} \begin{cases} h_b + h_a + \ell \leq 2 \\ C_a + C_b \leq f(\ell) \end{cases}$$

(c) $(w^*, p^*; h_a^*, C_a^*, h_b^*, C_b^*, \ell^*)$ es EqG si

(1) Emp. max

ℓ^* es la solución a:

$$\max_{\ell} \; p f(\ell) - w\ell$$

(2) Cons max

(h_i^*, C_i^*) es la sol a:

$$\max_{h_i, C_i} U_i(h_i, C_i) \quad \text{s.a.} \quad w h_i + p C_i \leq 1 \cdot w + \frac{1}{2} \pi^*$$

(3) Mcdos vacíen

$$h_a^* + h_b^* + \ell^* = 2$$

$$Ca^{\alpha} + Cb^{\tau} = f(l^{\alpha})$$

$w = 1$

P_x

P_y

$$f_x(l_x) = l_x^{1/2}$$

$$f_y(l_y) = 3 l_y^{1/2}$$

$$\bar{L}_A = \bar{L}_B = 36$$

$$\frac{1}{2} = \Theta_1 = \Theta_2$$

$$V_A(x,y) = X_A^{1/3} y_A^{2/3} \longrightarrow X_A^{\alpha} = \frac{I_A}{3P_x}$$

$$y_A^{\alpha} = \frac{2 I_A}{3 P_y}$$

$$U_B(x,y) = X_B^{2/3} y_B^{1/3} \longrightarrow X_B = \frac{2 I_B}{3 P_x}$$

$$y_B = \frac{I_B}{3 P_y}$$

FIRMA X

1/2 $\frac{1}{n}$

FIRMA x

$$\max_{l_x} \; P_x l_x^{1/2} - w^1 l_x$$

$$\frac{\partial \pi_x}{\partial l_x} = \frac{1}{2} P_x l_x^{-1/2} - 1 = 0$$

$$l_x^{-1/2} = \frac{2}{P_x}$$

$$\frac{P_x}{2} = l_x^{1/2}$$

$$\boxed{\frac{P_x^2}{4} = l_x^*}$$

DE TRABAJO

$$f(l_x) = l_x^{1/2} \Rightarrow \left(\frac{P_x^2}{4}\right)^{1/2} = \boxed{\frac{P_x}{2}}$$

OFERTA

$$\pi_x^* = P_x\left(\frac{P_x}{2}\right) - w^1 \frac{P_x^2}{4}$$

$$\pi_x^* = \frac{P_x^2}{2} - \frac{P_x^2}{4} = \frac{P_x^2}{4}$$

FIRMA y

$$\max_{l_y} \; P_y 3 l_y^{1/2} - w^1 l_y$$

$$\partial \pi_y = \frac{3}{2} P_y l_y^{-1/2} - 1 = 0$$

$$f(l_y) = 3 l_y^{1/2} = 3\left[\left(\frac{3}{2} P_y\right)^2\right]^{1/2}$$

$$= \boxed{\frac{9}{2} P_y}$$

OFERTA

$$\frac{\partial \Pi_y}{\partial l_y} = \frac{3}{2} P_y l_y^{1/2}$$

$$l_y^{-1/2} = \frac{2}{3 P_y}$$

$$\frac{3 P_y}{2} = l_y^{1/2}$$

a) $$\left(\frac{3 P_y}{2}\right)^2 = l_y^*$$

$$\Pi_y^* = P_y\left(\frac{9}{2} P_y\right) - w^* l_y$$

$$= \frac{9}{2} P_y^2 - \frac{9}{4} P_y^2$$

$$\Pi_y^* = \frac{9}{4} P_y^2$$

b) MISMOS VALORES

$$X_A + X_B = f_x(l_x)$$

$$Y_A + Y_B = f_y(l_y)$$

(a) $l_x + l_y = 36 + 36 = 72$

$$\Rightarrow I_A + \frac{(2) I_B}{\rightarrow P_x} = \frac{P_x}{2}$$

$$\hookrightarrow \frac{I_A}{3P_x} + \frac{(\text{illegible})}{3P_x} = 2$$

$$\frac{36\cdot 10^{21} + \frac{1}{2}\Pi x + \frac{1}{2}\Pi y}{3P_x} + \frac{2\left(36\cdot 10^{21} + \frac{1}{2}\Pi x + \frac{1}{2}\Pi y\right)}{3P_x} = \frac{P_x}{2}$$

$$108 + \frac{3}{2}\Pi x + \frac{3}{2}\Pi y = \frac{3P_x^2}{2}$$

$$216 + 3\Pi x + 3\Pi y = 3P_x^2$$

$$72 + \Pi x + \Pi y = P_x^2$$

$$72 + \frac{P_x^2}{4} + \frac{9}{4}P_y^2 = P_x^2$$

$$72 + \frac{9}{4}P_y^2 = \frac{3}{4}P_x^2$$

$$288 + 9P_y^2 = 3P_x^2 \Rightarrow 9P_y^2 = 3P_x^2 - 288$$

$$\Rightarrow 3P_x^2 - 288 = 288 - P_x^2$$

$\Rightarrow 3P_x - 288 \cdot \dots$

$4P_x^2 = 576$

$P_x = \sqrt{\frac{576}{4}}$

$P_x = 12$

(e) $\frac{P_x^2}{2} + \frac{9P_y^2}{2} = 72$

$l_x^* \quad l_y^*$

$P_x^2 + 9P_y^2 = 288$

$\rightarrow 9P_y^2 = 288 - P_x^2$

$\downarrow$

$P_y = \sqrt{\frac{288 - 12^2}{9}}$

$P_y = 4$

(a) $P_y = 4$

(b) $l_y^* = \frac{9P_y^2}{4} = \frac{9 \cdot 4^2}{4} = 36$

(c) $\pi_y^* = \frac{9}{4} P_y^2 = 36$

(d) $t_y(l_y) = \frac{9}{2} P_y = \frac{9}{2}(4)^2 = 18$

$36 + 18 + \frac{1}{2}\left(\frac{P_x^2}{4}\right)$

(c) $\bar{y}(y)$ z e

(e) $\bar{y} = \frac{I_{13}}{3P_y} = \frac{36 \cdot 1 + \frac{1}{2}(36) + \frac{1}{2}(18x)}{3 \cdot 4} = \frac{36 + 18 + \frac{1}{2}\left(\frac{18}{11}\right)}{12}$

$= \frac{36 + 18 + \frac{12^2}{8}}{12} = \frac{36 + 18 + \frac{3^2 \cdot 2^4}{2^3}}{12}$

$= \frac{36 + 18 + 18}{12} = \frac{72}{12} = 6$