Repaso Parcial 2d

Tuesday, October 29, 2019 5:28 PM

Abril 2019 : PI Abierta

$P = 600 - Q \qquad Q = q_A + q_B \qquad$ Cournot $\qquad CT(q_A) = 60 q_A$

$CT(q_B) = 150 q_B$

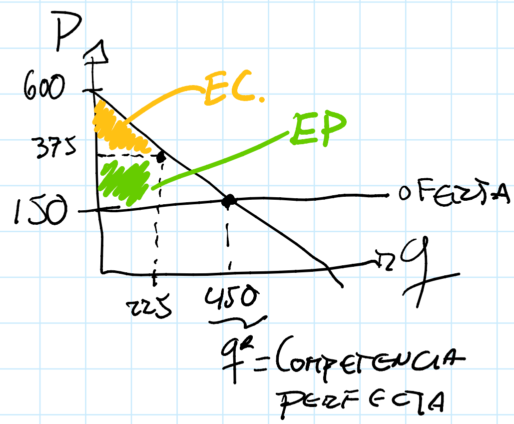
a)

$$\pi_B = (600 - q_B) q_B - 150 q_B$$

$$\frac{\partial \pi_B}{\partial q_B} = 600 - 2q_B - 150 = 0$$

$$\frac{450}{2} = \boxed{q_B^M = 225}$$

$$\boxed{P^M = 600 - 225 = 375}$$



$$EC = \frac{(600-375)(225)}{2}$$

$$EP = (375-150)(225)$$

$$\boxed{ES = EP + EC}$$

b) $\pi_A = (600 - q_A - q_B) q_A - 60 q_A$

$\pi_B = (600 - q_A - q_B) q_B - 150 q_B$

$$\frac{\partial \pi_A}{\partial q_A} = 600 - 2q_A - q_B - 60 = 0$$

$$\frac{540 - q_B}{2} = q_A(q_B) = MR_A(q_B)$$

$$\frac{\partial \pi_B}{\partial q_B} = 600 - q_A - 2q_B - 150 = 0$$

$$\frac{450 - q_A}{2} = q_B(q_A) = MR_B(q_A)$$

$$\frac{540 - q_B}{2} = q_A \rightarrow 540 - q_B - 2q_A = 0$$

$(\times 2)$

$$\frac{450 - q_A}{2} - q_B \rightarrow 450 - q_A - 2q_B = 0 \quad (\times 2)$$

$$-1080 + 2q_B + 4q_A = 0$$

$$-630 + 3q_A = 0$$

$$\boxed{q_A^{EN} = \frac{630}{3} = 210}$$

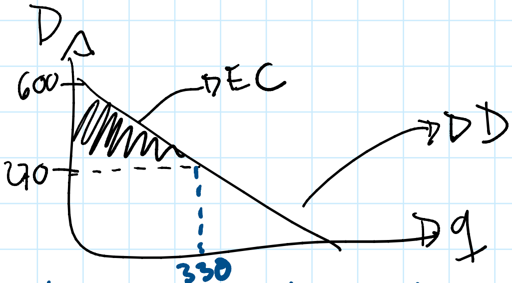
$$\boxed{q_B^{EN} = \frac{450 - 210}{2} = 120}$$

$$\boxed{Q_T = 210 + 120 = 330}$$

$$\boxed{P^{EN} = 600 - 330 = 270}$$

$$\pi_A = (270)(210) - 60(210)$$

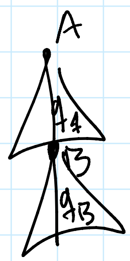
$$\pi_B = (270)(120) - 150(120)$$



$$EC = \left(\frac{600 - 270}{2}\right)(330)$$

$$ES = EC + \pi_A + \pi_B$$

(c)



Inducción Hacia Atrás

B: $\pi_B = (600 - q_A - q_B)q_B - 150q_B$

$$\frac{\partial \pi_B}{\partial q_B} = 600 - q_A - 2q_B - 150 = 0$$

$$\boxed{\frac{450 - q_A}{2} = q_B(q_A)}$$ ESTRATEGIA DE B.

A: $\pi_A = (600 - q_A - \underbrace{q_B}_{\text{ESTRATEGIA OPTIMA DE B.}})q_A - 60q_A$

ESTRATEGIA OPTIMA DE B.

$$: \left(600 - q_A - \left(\frac{450 - q_A}{2}\right)\right) q_A - 60 q_A$$

$$\frac{\partial \pi_A}{\partial q_A} = 600 - 2q_A - \underbrace{\frac{450}{2}}_{225} + q_A - 60 = 0$$

$$\boxed{315 = q_A}$$

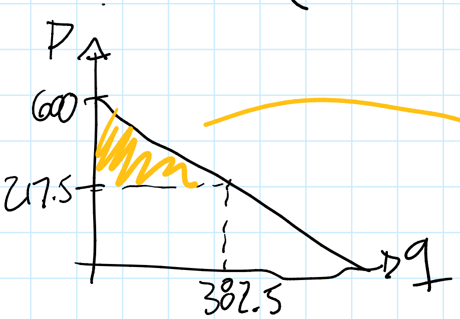
$$\underline{EPS} = \left\{ q_A = 315,\ q_B = \frac{450 - q_A}{2} \right\}.$$

EN EQUILIBRIO $\boxed{q_A = 315, \quad q_B = \frac{450 - 315}{2} = 67.5}$

$\boxed{Q_T = 382.5}$ $\boxed{P = 600 - 382.5 = 217.5}$

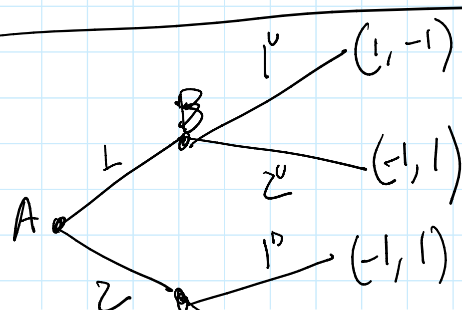
$\pi_A : (217.5)(315) - 60(315)$

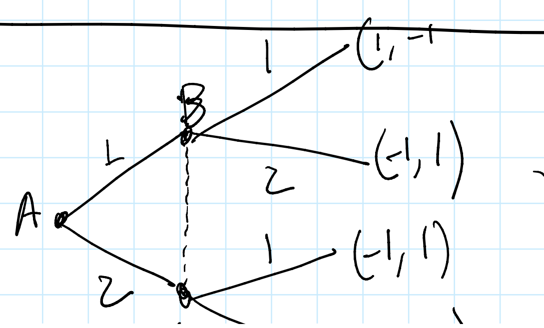
$\pi_B : (217.5)(67.5) - 150(67.5)$

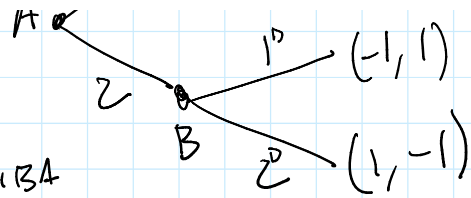


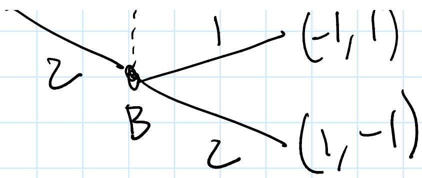
$$EC = \frac{(600 - 217.5)(382.5)}{2}$$

$$ES = \pi_A + \pi_B + EC.$$









ARRIBA

$S_B = \{(\ ,\ )\}$

ABAJO

	$(1^U,1^D)$	$(1^U,2^D)$	$(2^U,1^D)$	$(2^U,2^D)$
A 1	1, -1	1, -1	-1, 1	-1, 1
A 2	-1, 1	1, -1	-1, 1	1, -1

	B 1	B 2
A 1	(1, -1)	(-1, 1)
A 2	(-1, 1)	(1, -1)

NOV 2018 — OPCION MULTIPLE 8

$\sigma_1 = (p_A, p_B)$

$\sigma_2 = (q_j, q_K, q_L)$.

	j	K	L
A	5, 10	10, 15	5, 0
B	0, 20	5, 5	10, 25

c) $\boxed{\begin{aligned}\sigma_1 &= \left(\tfrac{3}{7}, \tfrac{4}{7}\right)\\ \sigma_2 &= \left(0, \tfrac{1}{2}, \tfrac{1}{2}\right)\end{aligned}}$

$\Downarrow$

INDIVIDUO 2 TIENE INCENTIVOS A DESVIARSE.

1)
$$\mathbb{E}(U_1(A, \sigma_2)) = 5\cdot 0 + 10\left(\tfrac{1}{2}\right) + 5\left(\tfrac{1}{2}\right) = \tfrac{15}{2}$$
$$\mathbb{E}(U_1(B, \sigma_2)) = 0\cdot 0 + 5\left(\tfrac{1}{2}\right) + 10\left(\tfrac{1}{2}\right) = \tfrac{15}{2}$$
$$MR_1(\sigma_2) = (p, 1-p) \checkmark$$

2)
$$\mathbb{E}(U_2(\sigma_1, J)) = 10\left(\tfrac{3}{7}\right) + 20\left(\tfrac{4}{7}\right) = \tfrac{110}{7}$$
$$\mathbb{E}(U_2(\sigma_1, K)) = 15\left(\tfrac{3}{7}\right) + 5\left(\tfrac{4}{7}\right) = \tfrac{65}{7}$$
$$\mathbb{E}(U_2(\sigma_1, L)) = 25\left(\tfrac{4}{7}\right) = \tfrac{100}{7}$$
$$MR_2(\sigma_1) = (1, 0, 0) \times$$

$MR_2(\sigma_1) = (1, 0, 0)$ ✗

a) $\sigma_1 = \left(\frac{1}{3}, \frac{2}{3}\right)$

$\sigma_2 = \left(\frac{1}{2}, 0, \frac{1}{2}\right)$

NO HAY INCENTIVOS UNILATERALES A MOVERSE

$\Rightarrow$ E.N.

1) $\mathbb{E}(U_1(A, \sigma_2)) = 5\left(\frac{1}{2}\right) + 10(0) + 5\left(\frac{1}{2}\right) = 5$

$\mathbb{E}(U_1(B, \sigma_2)) = 0\left(\frac{1}{2}\right) + 5(0) + 10\left(\frac{1}{2}\right) = 5$

$MR_1(\sigma_2) = (P, 1-P)$ ✓

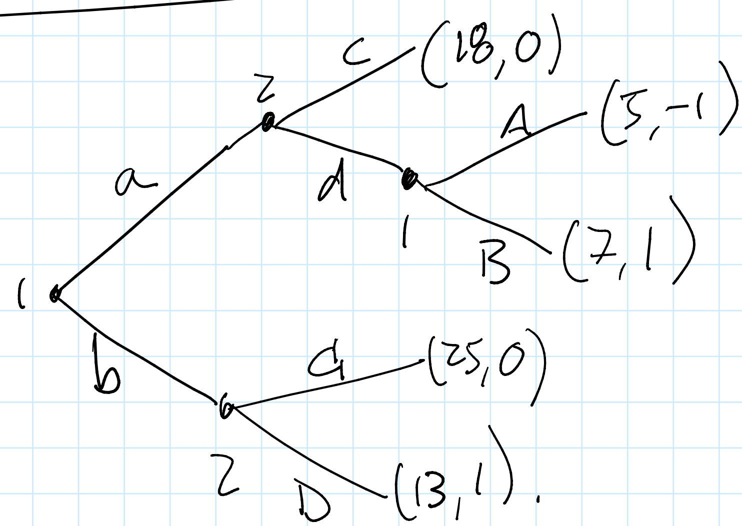
2) $\mathbb{E}(U_2(\sigma_1, S)) = 10\left(\frac{1}{3}\right) + 20\left(\frac{2}{3}\right) = 50/3$

$\mathbb{E}(U_2(\sigma_1, K)) = 15\left(\frac{1}{3}\right) + 5\left(\frac{2}{3}\right) = 25/3$

$\mathbb{E}(U_2(\sigma_1, L)) = 0\left(\frac{1}{3}\right) + 25\left(\frac{2}{3}\right) = 50/3$

$MR_2(\sigma_1) = (q, 0, 1-q)$

LABORATORIO VIEJO



a) $S_1 = \{(a, A), (a, B), (b, A), (b, B)\}$

$S_2 = \{(c,C),(c,D),(d,C),(d,D)\}$.

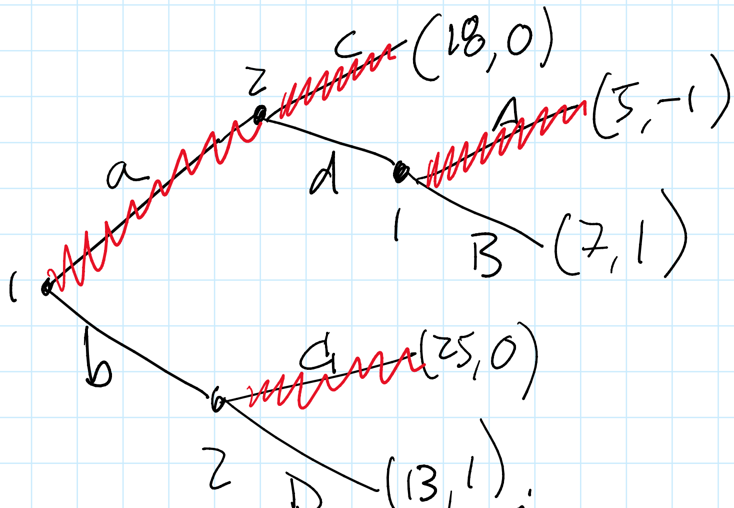
c)

S_1

	(c, C)	(c, D)	(d, C)	(d, D)
(a, A)	18, 0	18, 0	5, −1	5, −1
(a, B)	18, 0	18, 0	7, 1	7, 1
(b, A)	25, 0	13, 1	25, 0	13, 1
(b, B)	25, 0	13, 1	25, 0	13, 1

EN = $\{(a,A),(c,D)\}$;
$\{(b,A),(d,D)\}$;
$\{(b,B),(d,D)\}$

EPS



EPS: $\{(b,B),(d,D)\}$.

Bertrand — Competencia Precios } Simultaneos.
Cournot → Competencia Cantidad
Stackelberg → Competencia Cantidades → Dinamica.

• Noviembre 2017 → P1 Abierta

- n JUGADORES.

$e_i \geq 0$ ESFUERZO.

$$\Pi = \sum_{i=1}^{n} e_i \qquad c_i(e_i) = \frac{e_i^2}{2}$$

$$\Pi_i = \frac{1}{n}\sum_{j=1}^{n} e_j - \frac{e_i^2}{2}$$

$$EN = \left(\frac{1}{n}, \frac{1}{n}, \ldots, \frac{1}{n}\right)$$

a) $$\frac{\partial \Pi_i}{\partial e_i} = \frac{1}{n} - e_i = 0$$

$$\boxed{e_i^* = \frac{1}{n}}$$

b) $$\Pi^{EN} = \sum_{j=1}^{n} e_j^* = \sum_{j=1}^{n} \frac{1}{n} = n\left(\frac{1}{n}\right) = 1$$

c) $$\max_{e_1,\ldots,e_n} \Pi_1 \quad \text{s.t.} \quad \begin{aligned} \Pi_2 &\geq \overline{\Pi_2} \\ \Pi_3 &\geq \overline{\Pi_3} \\ &\vdots \\ \Pi_n &\geq \overline{\Pi_n} \end{aligned}$$

d) $$\mathcal{L} = \frac{1}{n}\sum_{j=1}^{n} e_j - \frac{e_1^2}{2} + \lambda_2\left(\frac{1}{n}\sum_{j=1}^{n} e_j - \frac{e_2^2}{2} - \overline{\Pi_2}\right) + \ldots + \lambda_n\left(\frac{1}{n}\sum_{j=1}^{n} e_j - \frac{e_n^2}{2} - \overline{\Pi_n}\right)$$

$$\frac{\partial \mathcal{L}}{\partial e_1} = \frac{1}{n} - e_1 + \lambda_2\left(\frac{1}{n}\right) + \lambda_3\left(\frac{1}{n}\right) + \ldots + \lambda_n\left(\frac{1}{n}\right) = 0$$

$$\frac{\partial \mathcal{L}}{\partial e_2} = \frac{1}{n} + \lambda_2\left(\frac{1}{n} - e_2\right) + \lambda_3\left(\frac{1}{n}\right) + \dots + \lambda_n\left(\frac{1}{n}\right) = 0$$

$$= \frac{1}{n}\left(1 + \lambda_2 + \lambda_3 + \dots + \lambda_n\right) = e_1$$

$$= \frac{1}{n}\left(1 + \lambda_2 + \lambda_3 + \dots + \lambda_n\right) = \lambda_2 e_2 \Rightarrow e_1 = \lambda_2 e_2$$

$$e_1 = e_2 \Rightarrow \boxed{\lambda_2 = 1}$$

$$\boxed{\lambda_2 = \lambda_3 = \dots = \lambda_n = 1}$$

$$\Rightarrow \frac{1}{n}\left(\overbrace{1 + 1 + \dots + 1}^{n}\right) = e_1$$

$$\boxed{1 = e_1 = e_2 = e_3 = \dots = e_n}$$

(e) $\Pi^{op} = \sum_{j=1}^{n} e_j^{op} = n$

(f)