16.2 Stackelberg 2 - Cournot Review Plus

Saturday, October 31, 2020 12:39 PM

Cournot Duopoly

$Q = q_1 + q_2 \rightarrow Q_{-i}, q_i \quad Q = q_i + Q_{-i}$

$u_i = (P - c_i)q_i - F_i$

$= (1 - q_i - q_{-i} - c_i) \cdot q_i$

$du/dq_i = 1 - q_i - q_i - c_i - q_i = 0 \rightarrow q_i = 1 - c_i/2 - q_{-i}/2$

$q_i = 1 - c_i/2 - \frac{1}{2}(1 - c_i/2 - q_i/2) \rightarrow q_i = (1 - 2c_i + c_{-i})/3$

$Q = q_1 + q_2 = (1 - 2c_1 + c_2)/3 + (1 - 2c_2 + c_1)/3 \rightarrow Q = \frac{2 - c_1 - c_2}{3}$

$P = 1 + c_1 + c_2/3$

$u_i = \left(\left[(1 - c_i + c_{-i})/3\right] - c_i\right)\left(\left[1 - 2c_i + c_{-i}\right]/3\right) = \left[(1 - 2c_i + c_{-i})/3\right]^2$