16.3-4 Differentiated Products 3-4

Saturday, April 3, 2021 1:47 PM

Bertrand w/ first mover

firm 1 moves π

firm $\frac{d\pi}{dP_1} = 0$

$P_{first} > P_{simultaneous}$

$\pi_{first} > \pi_{simultaneous}$

$\pi_{second} > \pi_{first} > \pi_{simultaneous}$

$q_1 = 1 - .5P_1 + .5P_2 \qquad c_1 = c_2 = .5$

$q_2 = 1 - .5P_2 + .5P_1$

$\pi = (P_1 - .5)(1 - .5P_1 + .5P_2)$

$\frac{d\pi}{dP_1} = -.5(P_1 - .5) + (1 - .5P_1 + .5P_2)$

$P_1 = 1.25 + .5P_2$

$P_2 = 1.25 + .5P_1$

$P = 1.25 + .5P$

$P = 2.5$

$\pi_1 = (P_1 - .5)(1 - .5P_1 + .5(1.25 + .5P_1))$