Problem set

Dixit and Stiglitz Model of Monopolistic Competition

Assume a quasi-linear utility given by

$$U = \left(\sum_{i=1}^{n} q_i^{\rho} \right)^{1/\rho} + q_0,$$

where $\rho < 1$.

1. Find the free-entry equilibrium number of firms n and the quantity q each firm produces.
2. Compare these values with the first-best, i.e., with the n and q a social planner would choose.
3. Does the equilibrium exhibit "excessive entry" and/or "excess capacity"? Explain.

2. Consider a market with a unit mass of consumers where each one has a rectangular demand with maximum willingness to pay equal to one. Two firms first (stage 1), simultaneously and independently, install capacities k_1 and k_2 and then (stage 2), again simultaneously and independently, compete on prices.

a) Completely characterize the price equilibrium in stage 2 for any k_1 and k_2.

b) Find the equilibrium capacities in stage 1.