

2. Consider a model with two sectors denoted 1 and 2. An agent in sector i decides to engage in a production project if:

$$R(Y_i, Y_{-i})y \geq c_i$$

where y is the output of the project, Y_i is the output of sector i , Y_{-i} is the output of the other sector, c_i is an idiosyncratic cost shock for agent i drawn from a distribution with pdf $f(\cdot)$ (the distribution of idiosyncratic shocks is the same in both sectors) and R is twice continuously differentiable in its arguments with $R_1 < 0$ and $R_2 > 0$. There are a continuum of agents in each sector and suppose half of the agents are in sector 1 and half of the agents are in sector 2. Each agent takes the actions of other agents (in their own sector and in the other sector) as given. Answer the following questions:

- a. Derive the Symmetric Nash Equilibrium for aggregate output.
- b. How many equilibria will there be? Discuss.
- c. Discuss alternative justifications for the assumed properties of R .
- d. Is there empirical evidence that would support the assumed properties of R ? Is this evidence for fluctuations at low (e.g., growth) or high frequencies (e.g., business cycles)? Discuss.