

ECON 7050
HW 4
Due Wednesday November 5

October 22, 2008

Problem 1 MWG 6.C.17

Problem 2 Consider an exchange Arrow-Debreu economy with two risk averse individuals (whose preferences over lotteries satisfy the vNM axioms), one commodity and two states of the world. Assume the individual endowments are $\omega_1 = (1, 0)$ and $\omega_2 = (0, 1)$ (as in Example 19.C.1) and the perceived likelihood of the two states is commonly shared, so that both believe that state 1 happens with probability $\pi_1 > 0$.

1. Show that in any competitive equilibrium individual consumption is constant across states ('complete risk sharing'). Will this be true if the agents' beliefs differ, so that the probability that 1 attaches to state 1 is higher than that of the second agent, $\pi_{11} > \pi_{12}$?
2. Show that if $\pi_1 > \pi_2$ then the first individual should consume more in an Arrow-Debreu equilibrium than the second individual.

Problem 3 19.C.2

Problem 4 Consider an exchange Arrow-Debreu economy with two individuals with identical preferences, $U(x_i) = \pi_1 \ln(x_{11i}x_{21i}) + (1 - \pi_1) \ln(x_{12i}x_{22i})$, two commodities and two states of the world. Assume the individual endowments are $\omega_1 = (1, 1, 0, 0)$ and $\omega_2 = (0, 0, 2, 2)$, so that the first individual has all the goods in the economy if state 1 occurs, while the second individual has it all, if state 2 happens. Assume also the perceived likelihood of the two states is commonly shared, so that both believe that state 1 happens with probability $\pi_1 > 0$.

1. Compute Arrow-Debreu equilibrium.
2. Compute Radner Equilibrium.
3. Show that the final allocation of goods is the same in both cases.