1 Sunspots

2 individuals, \( h = 1, 2 \)
2 states of nature, \( s = \alpha, \beta \)
1 indivisible good, \( x_h \in \{0, 1\} \) for \( h = 1, 2 \)

Let \( \omega_1 = 0.4 \) and \( \omega_2 = 0.6 \), so \( \omega_1 + \omega_2 = 1 \).

(a) Fully describe all possible competitive equilibria. How do these depend on \((\pi(\alpha), \pi(\beta) = 1 - \pi(\alpha))\)?

(b) Replace the assumption of two states with the assumption that \( s \) is uniform on \([0, 1]\). Describe the set of competitive equilibria. What happens when moving from \( s = \alpha, \beta \) to \( s \) uniform on \([0, 1]\)? What would be changed if the uniform distribution is replaced by a general continuous p.d.f. on \([0,1]\)?

(c) Do (a) and (b) for the case \( \omega_1 = 0.4 \) and \( \omega_2 = 0.7 \), so \( \omega_1 + \omega_2 = 1.1 \).

2

If there is a nonstochastic competitive equilibrium that is Pareto optimal, how can it be that a sunspot competitive equilibrium is superior. Give an example.