Money, Taxes and Sunspots

Four consumers: \( H = \{1, 2, 3, 4\} \)
Two states: \( s = \alpha, \beta \)
One commodity: \( \ell = 1 \)
\( u_h(x_h) = \ln x_h, \ h = 1, 2, 3, 4 \)
\( \omega = (\omega_1, \omega_2, \omega_3, \omega_4) = (30, 20, 10, 20) \)
\( \tau = (\tau_1, \tau_2, \tau_3, \tau_4) = (5, 0, -2, -3) \)
Common beliefs are \( \pi(\alpha) = 1/4, \pi(\beta) = 3/4 \)

1 The Certainty Economy

(a) What are the competitive equilibrium goods prices of money?
(b) What are the competitive equilibrium allocations of commodities?

2 The Sunspots Economy

Assume that 1 and 2 are unrestricted while 3 and 4 cannot trade securities, i.e. \( G^0 = \{1, 2\} \) and \( G^1 = \{3, 4\} \).

(a) Describe equilibrium money prices \( (P_m^\alpha, P_m^\beta) \).

(b) Choose from the equilibrium set particular strictly positive values of \( (P_m^\alpha, P_m^\beta) \)
Based on the numerical values:
   (i) Draw the relevant tax-adjusted Edgeworth box
   (ii) Find numerical values of the state contingent allocations for each consumer