

**Economics 614: Macroeconomics II**

Spring 2005

Cornell University

**Problem Set #12**

Due: Friday, April 29, 2005

## Money, Taxes and Sunspots

Four consumers:  $H = \{1, 2, 3, 4\}$

Two states:  $s = \alpha, \beta$

One commodity:  $\ell = 1$

$u_h(x_h) = \ln x_h$ ,  $h = 1, 2, 3, 4$

$\omega = (\omega_1, \omega_2, \omega_3, \omega_4) = (20, 10, 5, 4)$

$\tau = (\tau_1, \tau_2, \tau_3, \tau_4) = (2, 0, -1, -1)$

Common beliefs are  $\pi(\alpha) = \pi(\beta) = 1/2$

### 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