

Graduate Macro II, Homework 1

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Due in class on Tuesday January 31st 2006

Recall the example economy we worked through following Chapter 2 in Dirk Krueger's notes.

1. Consider the following alternative description of preferences and endowments. Period utility is given by

$$u(c^i) = \frac{(c^i)^{1-\gamma}}{1-\gamma}$$

Assume both individuals are infinitely-lived, and discount at rate β . Suppose the endowment stream is

$$\begin{aligned} e_t^1 &= 1.5 \text{ if } t \text{ is even, } e_t^1 = 1 \text{ if } t \text{ is odd} \\ e_t^2 &= 0.5 \text{ if } t \text{ is even, } e_t^2 = 2 \text{ if } t \text{ is odd} \end{aligned}$$

- (a) Characterize the set of Pareto Efficient allocations in this economy, assuming $\beta = 0.9$ and $\gamma = 2$.
 - (b) For these parameter values, use Negishi's method to find a candidate competitive equilibrium for this economy. Describe the candidate equilibrium values for prices and allocations
 - (c) Verify that the prices and allocations you solved for satisfy the necessary conditions for equilibrium
 - (d) Which agent enjoys higher utility in the equilibrium, and why?
2. Now revert back to the original description of preferences and endowments. Consider a Pareto efficient allocation indexed by the Pareto weight α . Show that for any $\alpha \in (0, 1)$ this efficient allocation can be decentralized as a competitive sequential markets equilibrium given an appropriate choice for a_0^1 (where a_0^1 is not necessarily equal to zero).