

HOMEWORK 7. Due Monday April 13.

1. Consider an agent with income (“output” in Obstfeld-Rogoff) $Y_1 = 10$, $Y_2^A = 25$, and $Y_2^B = 0$, where A and B are states of the world with $\pi^A = 0.4$ and $\pi^B = 0.6$. Assume $p^A = p^B$, $r = 10\%$ and the discount rate is $\beta = \frac{1}{1+r}$.

a) Assume the agent has quadratic utility. Does the “PIH-relation” $C_1 = EC_2$ hold?

b) Find C_2^A/C_2^B .

c) How many units of each Arrow-security does the agent purchase and how many units of the period 1 good? (this can be a negative number so “purchase” may mean sell.)

2. Now assume that the agent has utility function $U(C) = -\frac{1}{3}C^{-3}$.

a) Does the “PIH-relation” $C_1 = EC_2$ hold?

b) What is the intuition for the answer you gave in part a)?

c) Assume $\frac{p^A}{p^B} = \frac{2}{3}$. Now find C_1 and C_2^S for $S = A, B$ and check if $C_1 = EC_2$.