

EC2102 Macroeconomic Analysis I
Tutorial 2, Week 4 (February 1-5, 2010)

Question 1 (This is a continuation of Question 1 of Tutorial 1)

(v) What is the equilibrium real rate of interest at which the credit market clears? Express your solution as a function of β , and show that $dr^*/d\beta < 0$. What is the economic interpretation of $dr^*/d\beta < 0$?

(vi) Let $\beta = 0.8$. Explicitly solve for Mr A and B 's optimal consumption bundles and savings. Who is a saver? And who is a lender? Explain why Mr A and Mr B both have a flat consumption profile (they consume the same amount each period).

(vii) Now illustrate your solution to Mr A and Mr B 's maximization problems using graphs, and in particular, where is the endowment point relative to their optimal consumption bundles?

(viii) Define a competitive equilibrium in this economy.

(ix) Why is the equilibrium "competitive"? Explain why we only need to check that either the credit or goods market clears.

Question 2

Consider an economy with only 2 individuals, Mr A and Mr B . They each live for 2 periods only; they are both young in period 1 and old in period 2, and they die at the end of period 2. Their lifetime utility function is $U(c_1, c_2) = u(c_1) + \beta u(c_2)$, where subscript t , $t = 1, 2$, denotes period t . Further suppose that $u(c_1) = \ln(c_1)$ and $u(c_2) = \ln(c_2)$. Both Mr A and B can borrow and lend freely at a real interest rate of r . They are each endowed with 50 units of consumption goods in both the first and second periods.

(i) Show that $u'(c_t) > 0$ and $u''(c_t) < 0$, $t = 1, 2$, for $c_t > 0$.

(ii) Draw the first period utility function $u(c_1)$. Does it matter that for values of c_1 from 0 to 1 that the utility function takes on negative values? Why?

(iii) Without any computation, tell me what Mr A and B 's optimal consumption and savings choices $(c_1^*, c_2^*, s_1^*, s_2^*)$ are.

(iv) Explain the intuition for your result in part (iii).