# International finance
## Problem set 2

In what follows consider a small country inhabited by a total number of 1 identical citizens with a two-period lifetime and preferences over consumption of coconuts given by

$$U(c_1, c_2) = \log(c_1) + \beta \log(c_2) \tag{1}$$

with $1 > \beta > 0$. Coconut is the only good consumed in the country. All quantities are measured in units of coconuts.

1. Assume $\beta = 0.9$. If the country accesses the international capital market it can borrow/lend at interest rate (measured in units of coconuts today per coconut tomorrow) $r$ with $(1+r)^{-1} = 0.9$. Individual endowments are $y_1 = 40$ and $y_2 = y_1(1+g)$ with $g = 0.025$. The country's net foreign asset position at the beginning of period 1 is $B_0 = 0$.

   (a) Assume that because of capital controls the country cannot borrow/lend on the international capital market. Determine the autarky interest rate for the country in question.

   (b) Assuming the country is opened to the international capital market, solve for the optimal consumption level in the first period. Will the country borrow or lend in the first period?

   (c) Work out the value of the current account balances in period 1 and 2 (Suggestion: work with symbols and plug in the numbers only at the very end).

   (d) (An increase in the growth rate) Suppose the country's income growth rate $g$ were 0.05 rather than 0.025. Would the first-period current account deficit/surplus be larger or smaller?

2. (Immigration) Suppose now individual endowments are $y_1$ and $y_2$. Assume that endowments are such that the current account is balanced. If the capital stock cannot adjust immediately, a wave of immigration reduces income per capita temporarily by reducing the capital stock per head. You can model this as a fall in $y_1$ with $y_2$ unchanged. In Israel the early nineties saw a big wave of immigration mainly from former Communist countries. What do you expect happened to Israel's current account?

3. (Debt reduction) Assume a small country has an initial stock of foreign assets $B_0 < 0$. The latter implies that the stock of assets at the end of the first period is given by $B_1 - B_0 = rB_0 + Y_1 - C_1$. Assume it is $\beta(1+r) = 1$. The first period endowment is $y_1$ and there is no endowment in period 2.

   (a) Write down the country's intertemporal budget constraint and the optimality condition for investment and consumption.

   (b) What would be the effect of a debt reduction (a reduction in $B_0$) on the present value of the country's income. What is its effect on consumption and the current account in the first period?