Written Exam for the M.Sc. in Economics Winter 2015-16

International Macroeconomics

Final Exam

February 16 2016

(3-hour closed book exam)

Please answer in English only.

This exam question consists of 2 pages in total including this cover page.

This exam consists of 2 questions. Please answer both.

1. Are the following statements true, false or neither, and why? Explain your answer in detail. You do not need to use math for these questions but should feel free to if it helps you be precise.
   (a) Savings and investment are surprisingly highly correlated.
   (b) The Backus Smith puzzle is that relative consumption levels across countries are not constant.

2. Consider a two-period small open endowment economy with default. The representative country prefers more consumption c_t to less, and receives an endowment y_t of the consumption good in each period $t = 1, 2$.

   The endowment is exogenous, stochastic and i.i.d. with cumulative distribution function denoted by $F\cdot$. If the country is in default, it pays an output cost such that its endowment in default is $y^d = 0.5y$.

   One period bonds b_t that pay one unit of consumption in period t are the only available asset. The country can borrow from international investors in period 1 by issuing debt $b_2 < 0$ at price q. This price is determined in equilibrium. Notice that $b_3 = 0$. Assume that the country inherits no debt, $b_1 = 0$, and that it cannot accumulate assets, $b_t < 0, \forall t$.

   International investors are risk-neutral, competitive, maximize expected profits and have cost of funds given by the fixed, exogenous gross international risk-free rate $1 + r$.

   The timing is as follows. In period 1, after receiving y_1, the country decides whether to default or repay. If it repays, it chooses b_2. If it defaults, it pays the output cost. Consumption c_1 takes place. In period 2, after receiving the endowment y_2, if it did not default in period 1, it decides whether to default or repay. If it did default in period 1, it remains in default and pays the output cost. Consumption c_2 takes place.
   (a) Solve for the default decision of the country in the final period $t = 2$ as a function of the endowment y_2 and the debt level b_2. Comment on the economics, what determines default decisions in this model?
   (b) Show that the price at which the country can sell its bonds in the first period is given by
   $$q(b_2) = \frac{1 - F(y^*(b_2))}{1 + r}$$
   where $y^*(b_2) = -2b_2$.
   (c) Use the bond price to explain why and how borrowing is limited endogenously in this model.
   (d) What features are typically added to this basic model to evaluate its quantitative predictions, and why?
   (e) What is the explanation of the model for the observed pattern of countercyclical interest rates and trade balances experienced by emerging economies?