

## Assignment no 2

For seminar Tuesday February 19 2008

- A) We are looking at an intertemporal equilibrium model for the current account with two countries and two periods. Consumers in the two countries have identical preferences.
- Suppose the two countries have given endowments of the single commodity,  $Y$  and  $Y^*$ . The endowments do not change from period to period. Home's per capita endowment is twice as large as Foreign's endowment. Describe the equilibrium. Will the current account be balanced? Does the shape of the utility function matter?
  - Suppose instead that output is produced by capital and labor, the latter being in constant supply. The two countries have identical production functions except for a proportional productivity factor. Home's productivity factor is twice as high as Foreign's productivity factor. The two productivity factors are constant over time. Each country has an initial endowment of capital. For each country, describe the relationship between the world interest rate and the country's current account surplus in the first period. Describe how the equilibrium current account and the equilibrium interest rate are determined. How does an increase in Foreign's initial endowment of capital change the interest rate and the current accounts?
  - Suppose the initial endowments of capital in question *b* yield first period outputs at the same level as the endowments of goods,  $Y$  and  $Y^*$ , in question *a*. Compare the two equilibria (the endowment economy and the economy with production). Which has the highest world interest rate? (Hint: Try to sketch the relationship between the world interest rate and the current account for the two types of economies in the same diagram). Which has the highest second period consumption?
  - Suppose that a transfer of technology immediately raises foreign productivity to the same level as home productivity. How would this affect the world interest rate and the current account?
- B) Look at the model of a small open economy with an infinite horizon. Output is a function of capital input. Productivity is constant. Assume that the economy is initially in a stationary equilibrium. Then in period  $t$  it learns that in period  $t+1$  productivity will be temporarily higher than usual. Sketch the effect this will have on the time paths of investment, consumption and the current account. Compare to the effect of an *unexpected* temporary increase in productivity in period  $t+1$  and an expected *permanent* increase from period  $t+1$  onwards.

c) Traded and non-traded goods

- a. Assume the model with traded-and non-traded goods in Rødseth (2000) Ch. 7.1. Discuss the effect of a temporary increase in government consumption on the current account. Use graphs and verbal reasoning as far as possible.
- b. Compare your results in *a.* to the current account effects of a temporary increase in government expenditure in the kind of models you find in Obstfeld and Rogoff (1996) ch 1 and 2. What explains the differences in conclusions between the two types of models? How would you combine features from both models to achieve a better answer?
- c. Look at a permanent increase in government consumption of non-traded goods. Sketch the time path this will lead to for output and the current account when the economy is modeled as in Rødseth (2000) Ch. 7.1 and 7.3 with nominal wage rigidity. Again compare with the results from the intertemporal current account models in Obstfeld-Rogoff (2000) Ch. 1 - 2. Explain why the stationary equilibrium in Rødseth (2000) Ch. 7.3 cannot be a true long-run equilibrium.

*Assignment A is a revised version of assignment C that we did not have time to discuss at the previous seminar.*