

PROPOSAL: NUMERICAL ANALYSIS OF DETERMINANTS OF INTERNATIONAL CAPITAL MOVEMENT

Koichi Hamada, Professor
Department of Economics

The current account surplus in, e.g., Japan and China, and the current account deficit in, e.g., Australia and the United States, is of keen interest to economists and policy makers. Conventional approaches to the current account imbalance have been to examine the factors influencing export and import. The current account is, however, the reverse side of a coin of the capital account.

Instead, in my opinion, the determination of current account, accordingly that of capital movements should be studied by the prospect of overtime consumption decisions (Chen, Hamada and Kamihigashi (enclosed mimeograph)). We solved the two country optimum savings model along Ramsey-Cass-Koopmans. In particular, we have focused on the model with different rates of time preference and obtained the results that the long-run state depends on the average of time discount rate and that the long-run indebtedness depends on the difference between the country's discount rate and the world average discount rate.

In the simplest model with two countries that contain two dynamic state variables and two dynamic co-state (shadow) variables, we proved the saddle point property in the neighborhood of the long run equilibrium. We need extensive numerical analyses for more general results with many countries or many agents in countries. Furthermore, in order to understand the actual world, we need to extend our analysis with time varying growth rates, and time varying discount rates, the latter of which touches on the fashionable topic of hyperbolic discounting. If properly done, this study will give a micro-foundation of capital movements, and a guide to debt criteria for highly indebted developing countries.

I would like to ask the student to 1) rewrite our system of differential equations to the system of difference equations or the recursive system; 2) assess the eigen-values of the system around the equilibrium by numerical methods; and 3) calibrate the time trajectory of outputs and debts for the world economy with time varying parameters.

I would like to choose an applicant who is fully trained in numerical and calibration methods. (It is important that a student is already well prepared in computation methodology, and it is of course better if the applicant is interested in macro and international economics.) He or she will teach me those techniques and I will provide him or her with the basics of international economics and general guidance in conducting economic research and related disciplines. In preparing a joint publication we will discuss the meaning of our approach to policy issues in the world economy.