Modeling International Trade

Short Course on CGE Modeling, United Nations ESCAP

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Introduction

- We have now constructed the two main building blocks of a CGE model, a basic demand block and a production block (in a couple of flavors).
- Our next step is to bring the two together and thereby form a basic model of international trade.
- We'll consider a small country model.

Session Outline

1. Building a model of a small open economy

Small Economy

- A small economy is defined as one for which the world prices are fixed.
- We already have the pieces we need to build a model of a small economy engaging in free trade.
- To do so, we use one of our models of production to model the supply side.
- The solution to the problem is the maximum value of income (GDP) at world prices.
- Given we can then solve the representative consumer's problem to characterize demand.
- International trade is the difference between the production and consumption bundles.

GAMS Program

1. Start with one of the models of production.
2. Add in the variables and parameters associated with consumption (`ALPHA`, `BETA(I)`, `C(I)` and `U`).
3. Replace income (`Y`) with `GDP` at all occurrences.
4. Define a new variable `X(I)` (and corresponding initial value) to hold the trade flows. This should not be bounded.
5. Add a new equation to the model to determine the trade flows as `X(I)=E=Q(I)-C(I)`.
6. Set up the model and solve statements