

Exercise 1: the producer model (soe_producer_student.gms)

In this exercise the economy produces two goods from two factors of production. We focus only on the producer side. Producers take final goods prices as given, minimize production costs based on the constant returns to scale production function

1. Complete the market clearing for factors of production equation
2. Complete the zero profit condition for firms
3. Run a benchmark simulation and write down the results
4. Perform a simulation of a change in the endowment of labor. Comment on the results.
5. Perform a simulation of a change in the price of good 1. Comment on the results.

Exercise 2: the closed economy model with two households (2HH_student.gms)

We add households to the model. There are two households. Capitalist households own the stock of capital of the economy. Worker households own the endowment of labour. The preferences of the two groups of consumers are the same and they both have a Cobb-Douglas utility function.

1. Complete the market clearing for goods equation
2. Complete the income equation
3. Run a benchmark simulation and write down the results.
4. Perform a simulation of a change in the endowment of labor. Comment on the results.

Exercise 3: the open economy model with producers and consumers (2HH_open_student.gms)

1. Convert the model from previous exercise to an open economy model by modifying the market clearing equation and exogenising the prices. Introduce a net exports variable for each sector.
2. Run a benchmark simulation and write down the results
3. Perform a simulation of a change in the endowment of labor. Comment on the results. What happened to consumer welfare?
4. Perform a simulation of a change in the price of good 1. Comment on the results. What happened to consumer welfare?

Exercise 4: Take another economy that is a mirror (endowments) image of the economy from exercise 2 (2HH_world_student.gms)

1. Run an autarky simulation.
2. Simulate the opening of both economies to free trade. Comment on the results. What happened to welfare of various households?
3. What happens to the production of goods, terms of trade and factor wages when endowment of capital in the home country increases.
4. Introduce a tariff (an import tax) on one of the goods in one of the countries. The proceeds of the tax go to both households (in equal proportions). Comment on the results. What happened to consumer welfare? What happened to world welfare?