Math (Econ), Problem Set #7, Computable General Equilibrium Models

OSM Lab, Dinar Prihardini

Due Thursday, August 2 at 6:00pm

1. Using the `SimpleCGE.GMS` file and lecture notes as a guide, code the simple CGE model discussed in class using Python. Check that the model is correctly coded and calibrated by running the price neutrality and constant returns to scale simulations.

2. Simulate a 5 percentage point increase in production tax in the "industrial" sector. Summarize and discuss the key results from this policy increase.

3. Now run a sensitivity analysis on the production tax simulation by lowering the elasticity of substitution between imports and domestic goods in the "industrial" sector to 2. Explain why the results for the following variables have changed compared to those in the previous question:

    (a) Imports of "industrial" goods

    (b) Domestic production of "industrial" goods

    (c) Government revenue

4. With the original value for the elasticity of substitution, change the closure assumption for foreign savings and investment so that there is a perfectly elastic supply of foreign funds. Summarize and discuss the key results from this change in closure.

5. With the original value for the elasticity of substitution and original closure assumption for foreign savings and investment, adjust the government budget balance closure so that you are balancing the budget by increasing transfers to households. Summarize and discuss the key results from this change in closure. Which budget balance closure makes households better off?

6. You are presenting the results of your analysis to the Finance Minister. What would be your recommendation regarding the policy of increasing this production tax? What are the limitations of the CGE analysis that you would communicate to the Minister?