

Setting up a simulation

Steps

- The closure:
 - Define exogenous and endogenous variables
 - Number of variables >> number of equations
- Specify required shocks to exogenous variable/s of interest
- In our case, we will remove the tariff on EU's imports of "food" from the ROW
- Solve and then interpret output

Closures

- Click on the **Closure** tab
- This the standard closure – but it can be changed
- These exogenous variables are held fixed. They are the variables that can be changed , or “shocked” in a simulation
- All the beginning with ‘a’ are technical change variables
- Note all tax and subsidy variables are exogenous
- Population and supplies of primary factors are also held fixed.
- The ‘slack’ variables can be found in GTAP.TAB. Fixing them at zero forces the related equation to hold.
 - In GTAP.TAB search for ‘profitslack’
 - ‘endwslack’

The experiment

- We will remove the tariff on EU's imports of "food" from the ROW
- Calculating the required shock
- We have seen that
 - $TMS_L(\text{"food"}, \text{"ROW"}, \text{"EU"}) = 1.15$
 - and a change of -13% reduces this to zero
 - $tms(\text{"food"}, \text{"ROW"}, \text{"EU"})$ is to be shocked by this amount

Specifying the shock in RunGTAP

- Click the '**Shocks**' tab
- Click '**Clear Shocks List**' to remove any previous shocks
- Open the drop down box '**Variable to Shock**'
- Click on **tms**
- Now enter "food" "ROW" "EU"
in the boxes, in the CORRECT order!
by making these selections from the drop-down boxes

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- There are several ways of specifying the shock value
 - In the '**Type of shock**' box,
click on *%target rate*
 - Now enter a zero in the '**Shock value**'
 - You will see that the shock has been computed as -13.06%
 - and that the initial tariff rate was 15.02%
 - Now click on **Add to Shock List**

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- Another way of specifying the shock
 - Click on **Shocks** tab, select **tms** and the appropriate elements to shock, as before
 - Now in **Type of Shock**
select **%change rate**
enter a Shock value of -100
(We are changing the value of **tms** by -100%)
exactly the same shock is computed

Solving the model

- Click on the **Solve** tab

- Name your experiment

Type, say, Remove tariff on EU food imports
from ROW

Click on **Save Experiment**

Give this experiment file a name:

tariff1

Click **OK**

Choice of parameter file

- The default parameter file is named default.prm (see earlier lecture)
- If you want to change some parameters, such as the substitution elasticities, you would save them in a new parameter file, and select that file when setting up the simulation

Choice of solution method

- GTAP, in LEVELS, is a nonlinear model
- It is linearised by expressing it in percentage changes.
- See pp.30-32 of Chapter 2 of the GTAP book
- Gragg's method is the default.
- It solves the model several times, each time with a successively finer grid
- The solution provides an accuracy summary
- Select Gragg: 2-4-6 steps

Using Graggs solution method

- Click on **Solve**
- Note accuracy summary
- Now change the solution method
 - Using Gragg, increase the steps to **4-8-12**
- Click on **Solve**
- Click on **No** for saving this as a new experiment
- Note improved accuracy