



# A Basic Closed Economy CGE Model: Exercises

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## Outline

- Introduction
- Assigning Equations
- Running first experiments
- Results
  - Collecting into tables
  - Calculating derived results
- Using INCLUDE files


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## Aims


- Learn to
  - Code equations
    - Generic (GAMS) programming skills
    - Resolve syntax errors
    - Resolve execution errors
  - Run simple experiments
- Start to write experiments
- Start to interpret CGE results
- Develop skills
  - In coding
  - In data handling

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## Follow the instructions in the document

### *Basic 2 Sector Model Exercises.pdf*


Start at the beginning and work through each exercise.

Techniques and skills used here will be used repeatedly in the course. We may not do things the way you are used to doing things.

Even if you already knew ‘everything’ you may learn something new.


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# User Model Library & New Project




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# The Course Library

Working with files on ‘cloud’ can cause synchronisation problems

- Create a course library directory, e.g.,  
C:\cgemod\cgemod\_lib
- Download the library files for the closed economy models – practical\_lib.zip from Mod 01 on Moodle
  - This library has all the code for the first 6 modules
- Unzip the contents of practical\_lib.zip into the library- C:\cgemod\cgemod\_lib
  - If asked, overwrite existing files
- The library index file will be
  - Practical CGE Library

See also section 11 of ‘An Introduction to GAMS with GAMS Studio’  
([http://www.cgemod.org.uk/Intro to GAMS Studio.pdf](http://www.cgemod.org.uk/Intro%20to%20GAMS%20Studio.pdf))



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cgemod

cgemod\_lib

clmod

clmod1

opmod

smod

transport

First create a new (sub) directory  
...clmod\clmod1

cgemod

cgemod\_lib

clmod

clmod1

opmod

smod

transport

No items match your search.

File name: clmod1.gsp

Save as type: GAMS Studio Project (\*.gsp)

Save

Then use File>New 'project to create a new project file (the name is not important) in the directory  
...clmod\clmod1

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Project Explorer

clmod1

Welcome

Project file: C:\cgemod\clmod\clmod1\clmod1.gsp

Name: clmod1

Base directory: C:\cgemod\clmod\clmod1

Working directory: C:\cgemod\clmod\clmod1

Main file: -none-

Parameter file: -none-

Note there is no Main file or parameter file

Model Library Explorer

Filter model tabs ...

Practical CGE Library (4)

Introduction to GAMS Studio (5)

Model Library (430)

Test Library (895)

API Library (61)

Data Utilities Library

SeqNr	Name	Model Type	Type	Modeling Points
01	clmod1	Basic 2 sector model	NLP	Building a CGE model in GAMS
02	clmod1_expt	Basic model Expts	NLP	Building a CGE model in GAMS
03	clmod2	A 2 Sector model with Investment, Government and Intermediates	NLP	Building a Simple CGE model
04	clmod2_expt	A 2 Sector model with Investment, Government and Intermediates	NLP	Experiments with a Simple CGE model

Populate the project from the User Library  
– Practical CGE Library  
- SeqNr 01 clmod1

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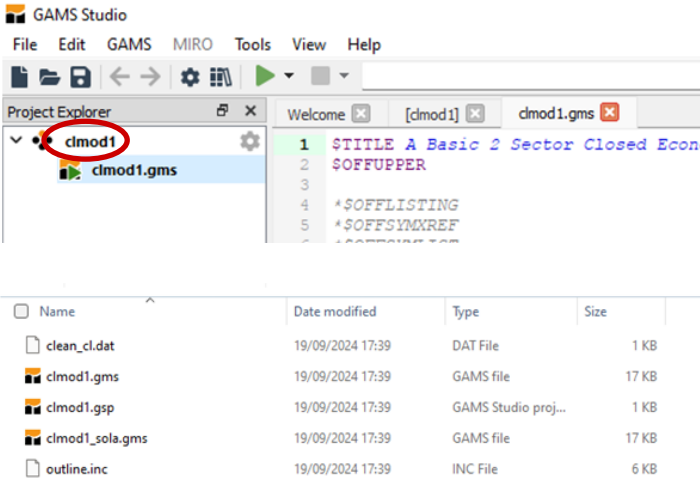
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## A First Project & Project Files



The Main file in GAMS Studio

Files in the project directory from the User Library

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## Assigning Equations

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## Assigning Equations

- The template (c1mod1.gms) contains
  - All set declarations and assignments
  - All parameter declarations and assignments
  - All variable declarations and initialisation
  - All equation declarations
- In this part of the exercise you will
  - Assign the equations
  - Resolve all syntax and execution errors you cause
- The exercise document provides details for all the stages

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## Experiments


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## Experiments

- You will code and run three experiments
  - Each involves different percentage increases in factor supplies
- For each experiment you will
  - Collate the results
  - Answer questions about the results

The answers to the questions are VERY important.  
This is the first step in learning how to interpret  
the results from CGE models.

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## Skills


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## GAMS Skills


- Coding experiments
  - Shock ONLY parameters
  - Check the shocks
  - Run multiple SOLVE statements
- Collecting results
  - Create parameters for results
  - Assign results to parameters
- Calculating derived results
  - Create parameters for derived results
  - Use calculations to assign results to parameters
- Creating INCLUDE files
  - Write experiments in INCLUDE files
  - Add include files to the model
  - Run multiple experiments in an INCLUDE file
  - Save groups of experiments as INCLUDE files

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## The End

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