



How To Change a Factor Market Closure

This guide shows you how to change a factor market closure in the UNI-CGE model. A full employment/unemployment closure and sector-specific factors are defined using set definitions in the Excel country data file.

CONTENTS

1. FACTOR MARKET CLOSURE	2
2. FACTOR MARKET CLOSURE – DEFINE IN COUNTRY DATA FILE	2
3. UNEMPLOYMENT CLOSURE – FLAGS IN THE UNI-CGE MODEL...	5
4. FACTOR MOBILITY CLOSURE – CONDITIONED CODE IN MODEL	5

1. FACTOR MARKET CLOSURE

There are two factor market closure decisions in the UNI-CGE model.

First, factors can be described as being fully employed **OR** factors may become unemployed. If factors are fully employed, changes in activities' factor demands will cause wages to change. Factors will move among production activities until all are reemployed at some equilibrium wage or rent that is the same in all activities.

The second factor market closure describes whether factors are mobile across activities (they can move to new employment as wages change) or sector-specific (they must remain in their original employment).

This guide shows you the mechanics of how you can change the factor market closures. You can learn more about the economic thinking behind both closures in the factor market lesson in the Supply module of this course.

2. FACTOR MARKET CLOSURE – DEFINE IN COUNTRY DATA FILE

The factor market closures in the UNI-CGE model are defined in a different way than other closures. Instead of defining the closure in the UNI-CGE model, you define the closures in the Excel country data file, using set definitions. You create sets that include unemployed factors or sector-specific factors, following these steps:

- i. Open the Excel file with your country data. Our example uses the SAM-US333.xlsx file.
- ii. Go to the “Sets” worksheet. This page has the definitions of all sets in the model.

iii. The UNI-CGE model has two factor sets:

SET **FSF** - Factors that are **S**ector-specific (**F**ixed in original employment)

SET **FUE** - Factors that can be **U**n**E**mployed

iv. The SAM-US333.xlsx file has empty sets for set FSF and set FUE. This means that in the UNI-CGE model, all factors are fully employed and fully mobile.

v. In Figure 1, SET FUE is redefined to include labor (f-LABOR). Labor is now defined to allow unemployment to occur. Set FSF remains empty – so no factor has been designated as sector-specific.

vi. The country data file, and its factor set definitions, is read into the UNI-CGE model.

vii. The CGE model then automatically assigns flags for employment or unemployment based on the content of the set FUE.

viii. The CGE model turns on code that makes factors sector-specific based on the content of set FSF.

Figure 1. Set definition worksheet in SAM-US333.xlsx data file

global set	Description	Commodities	Activities	Factors	Factor Use taxes	Institutions	Households	Labor	Activity specific factor	Unemployed factor
		C	A	F	TFF	INS	H	FLAB	FSF	FUE
a-AGR	Agriculture	c-AGR	a-AGR	f-LAND	tf-LAND	PRIV	PRIV	f-LABOR		F-LABOR
a-MFG	Manufacturing	c-MFG	a-MFG	f-LABOR	tf-LABOR	GOV				
a-SER	Services	c-SER	a-SER	f-CAPITAL	tf-CAPITAL	ROW				
c-AGR	Agriculture									
c-MFG	Manufacturing									
c-SER	Services									
f-LAND	Land									

NOTE - a factor cannot be BOTH unemployed and activity-specific. If you assign the same factor to the set FUE(f) and FSF(f), the model treats the factor as unemployed.

3. UNEMPLOYMENT CLOSURE – FLAGS IN THE UNI-CGE MODEL

The factor employment closure has a flag value of one or two (Table 1). A full employment closure has a value of 1, and an unemployment closure has a value of 2.

Table 1. Factor market closure – full employment versus unemployment

Closure	Flag number	Fixed variable	Variable that adjusts
Full employment	FCLOS(f) = 1	Factor supply	Factor wage or rent
Unemployment	FCLOS(f) = 2	Factor wage or rent	Factor supply

The default value of the unemployment flags in the UNI-CGE model have a value of one, so all factors are fully employed:

$$FCLOS(F) = 1 ;$$

If set FUE in the country data file contains a factor, the model will then redefine that factor as having an unemployment closure, with a flag of 2:

$$FCLOS(f)FUE(f) = 2 ;$$

4. FACTOR MOBILITY CLOSURE – CONDITIONED CODE IN MODEL

If the modeler has defined a sector-specific factor in set FSF in the country data file, the lack of factor mobility in the UNI-CGE model is implemented by turning on the appropriate model code. That is, the code that describes factor mobility is “conditioned” – it turns on only if a factor is listed in set FSF. Table 2 presents and explains the conditioned code:

Table 2. UNI-CGE model code for sector-specific factors

Model code	What it does:
IF ((FCLOS(F) = 1 AND FSF(F)),	The code is conditioned. It is turned on IF the factor is fully employed AND it is included in set FSF
QF.FX(F,A) = QF0(F,A) ;	The quantity of factor f (QF) employed in activity A is fixed at the original level
WFDIST.LO(F,A) = -INF ; WFDIST.UP(F,A) = +INF ;	The sectoral wage/rent differential (WFDIST) will adjust to keep factors in their original employment
WF.FX(F) = WF0(F) ;	The economy-wide average wage/rent (WF) (excluding the sectoral premia) is fixed at its original level.