MAMS IN GAMS: DETAILED REVIEW

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TO DO

- read readme-mams.txt
- create a new database for MAMS based on test-mdg.
- changes in DMOD.gms.
- run the model.
- generate errors in new-mdg database
- use diagnostics-data.inc (i.e., navigate through the .lst file)
- change the database to test-macro.
- run the model.

CREATING A COUNTRY DATABASE FOR MAMS

- Create <country>-mdg.dat, <country>-mdg.xls, and <country>-mdggdx.inc files based on test-mdg.dat, test-mdg.xls, and test-mdggdx.inc, respectively.
- Make the following changes to dmod.gms file:
  - Add the new database to the set dbase0.
  - Add the new database to the set mdgmodel0.
  - Add an $INCLUDE <country>-mdg.dat statement at the INCLUDE ONE DATA SET section.

MACRO VERSION EXAMPLE

- egy-macro.xls (copy and rename test-macro.xls)
- egy-macro.dat (copy and rename test-macro.dat)
- egy-macrogdx.inc (copy and rename test-macrogdx.inc)

CREATING A COUNTRY DATABASE FOR MAMS

- Make the following changes to the <country>-mdg.dat file:
  - Replace the value for parameter dbincl(dbase0).
  - Fill the time related sets always looking for sections marked as !!!--START-INPUT … !!!--END-INPUT.
  - Fill the set ac based on SAM accounts and government services for capital factors always looking for sections marked as !!!--START-INPUT … !!!--END-INPUT.
  - Fill the following sets: t11, t1, t2, tsol, tmid, ac, a, c, f, flab, fcap, ins, h, intdomrow, savins, tax, capins, inv, invprv, invpub, cedu, chlth, among other. Notice that the use of this sets gives a lot of flexibility to MAMS.

TIME SETS IN <country>-mdg.DAT FILE

- t11 all years (incl. years preceding simulation period)
  /1952*2050/
- t1(t11) all potential years for model simulations
  /2002*2050/
- t(t1) years for which model is solved
  /2002*2015/
- t2(t1) auxiliary time set identical to initial definition of t
  /2002*2015/
- tsol(t1) years for which the model is solved
  /2002*2015/

CREATING A COUNTRY DATABASE FOR MAMS

- Make the following changes to the <country>-mdg.dat file (cont):
  - Notice that all government activities need to have a specific capital factor.
  - Some sets can be left empty (e.g., cedup2 in most countries).
  - Fill the following mappings between different sets: mfcapgova, mcapsavins, mcapinv, mactinv, mcedu, mflabc, among others.
  - Select one of the three available methods to read your country database. Notice that the user need to provide one of the following files: <country>-mdgxls.inc; <country>-mdggdx.inc; or <country>-mdg.inc.

CREATING A COUNTRY DATABASE FOR MAMS

- Changes in DMOD.
- Changes in <country>.dat.

THE EXCEL FILE

We provide some guidelines to successfully run MAMS for the first time. Notice that, in a later stage, the user should use his own data throughout the EXCEL sheet.

- Introduce your SAM.
- Assume that exogenous variables grow at the same rate as GDP.
- Make simplifying assumptions for data on government investment used to estimate initial government capital stocks.
- Run the MACRO version of MAMS.
- Use the information that diagnostics-data provides.

SELECTION MODEL VERSION

- The model can be solved using two alternatives methods:
  - multi-pass; and
  - single-pass.
- The model should be solved at least twice in order to calibrate TFP:
  - fix GDP closure (i.e., calibration run); and
  - fix TFP closure (i.e., GDP becomes endogenous).
- The selection is made at the top of DMOD.GMS file.

REPORTING RESULTS FROM MAMS

- values for all model variables - variable name + X stored in parameter;
- % annual growth in parameters from first period to last period - above parameter name + PP;
- % annual growth in parameters from some intermediate year to last year - above parameter name + PPMID; and
- % annual growth in parameters from preceding period - above parameter name + PY.

THE MACRO CLOSURE RULE IN DMOD2

- A usual in a CGE model, MAMS needs to specify three macroeconomic closures:
  - government sector;
  - external balance; and
  - savings-investment.

MACRO CLOSURE RULE BASELINE (DMOD2.GMS)

- GOVERNMENT. Direct taxes are endogenous. Government savings are a residual. Government investment necessary to cover capital needs. Government consumption is exogenous. Government debt follows an exogenous path.

- EXTERNAL SECTOR. Small open economy. RER adjusts to equilibrate the current account BoP. Savings from ROW is implicitly fixed because values are imposed for: foreign debt, transfers from/to ROW; and FDI.

- SAVINGS-INVESTMENT. Private investment is a fixed proportion of absorption. The savings rates for domestic non-government institutions are endogenous.

PRODUCING A BASELINE

- Check that LOGCALIBEDU and LOGCALIBMDG models solve without errors;
- Monitor the evolution of debt stocks in the baseline. Check the section named diagnostics check for debt and borrowing for help.

SIMULATIONS FILE (DSIM.GMS) FILE

- All the available simulations are in the set sim while the current simulation (i.e., those that are actually run) are in the set simcur.
- The simulations can be run in multi-pass (more robust) or single-pass (faster). The selection can be made for every simulation separately.
- The user can change closure rules in DSIM.GMS by changing the values for siclos, govclos, and rowclose. Be careful when changing a closure rule!