

ISIM-MAMS: The Pre-Programmed Reference Scenario

Martín Cicowiez

(CEDLAS-UNLP and UN-DESA
consultant)

Marco V. Sánchez

(UN-DESA/DPAD)

Presentation for First Intensive Training Workshop of the Project
“Strengthening Macroeconomic and Social Policy Coherence through
Integrated Macro-Micro Modelling”, Amman, November 12-15, 2012

Outline

- Introduction
- Creating a New ISIM-MAMS Application Excel File
- Sets in MAMS / ISIM-MAMS
- Key Default Assumptions
- Running the Pre-Programmed Reference Scenario
- Changing Assumptions for the Pre-Programmed Reference Scenario

Creating a New ISIM-MAMS Application Excel File

- To create a new ISIM-MAMS application Excel file,
 - open Excel
 - click on the ISIM-MAMS tab
 - click on **New | In New Workbook** in the **Application** ribbon group; then,
 - **Name** = Test-ref0
 - **Dataset** = Debugistan
 - **Version** = MDG

MAMS / ISIM-MAMS Sets

- The following sets are used in MAMS / ISIM-MAMS to define simulations
 - sim = simulations
 - a = activities
 - c = commodities
 - f = factors
 - ins = institutions
 - insd = institutions, domestic
 - h = institutions, households
 - ac = global set

MAMS / ISIM-MAMS Elements

- The following elements are also used in ISIM-MAMS to define simulations
 - `trgovrow` = trnsfr from RoW to gov
 - `trgovngov` = trnsfr from non-gov to gov
 - `gborz` = domestic borrowing gov, interest
 - `gbormsz` = domestic borrowing gov, non-interest
 - `fborgov` = foreign borrowing gov
 - `trngovrow` = trnsfr from RoW to non-gov
 - `trfacrow` = trnsfr from RoW to factors
 - `fborngov` = foreign borrowing non-gov
 - `fdiz` = foreign direct investment

The Pre-Programmed Reference Scenario

- As explained, the pre-programmed reference scenario reflects a business-as-usual situation from 2009 to 2015
 - thus, other (non-base) simulation results are interpreted relative to the pre-programmed reference scenario

Key Default Assumptions in Debugistan 2009 Reference Scenario

- The Debugistan pre-programmed reference scenario makes the following assumptions – can be changed using corresponding buttons in ISIM-MAMS **Setup** ribbon group.
- GDP growth rate during 2010–2015 is

2010	2011	2012	2013	2014	2015
0.0579	0.0595	0.0625	0.0700	0.0700	0.0700

Source: possibly, World Economic Outlook International Monetary Fund

Key Default Assumptions in Debugistan Reference Scenario – cont.

- Government Spending

- primary education = quality constant
- secondary education = quality constant
- tertiary education = quality constant
- health = exogenous GDP share
- water and sanitation = exogenous GDP share
- other infrastructure = exogenous GDP share
- public administration = exogenous GDP share

Key Default Assumptions in Debugistan Reference Scenario – cont.

- Government Receipts – Rules + Closure
 - tax-dir = exogenous GDP share (baseyr)
 - tax-com = exogenous GDP share (baseyr)
 - tax-imp = exogenous GDP share (baseyr)
 - trgovrow = exogenous GDP share (baseyr)
 - trgovngov = exogenous GDP share (baseyr)
 - gborz = exogenous GDP share (baseyr)
 - gbormsz = exogenous GDP share (baseyr)
 - **fborgov** = **endogenous – see govclos0 (!)**

Key Default Assumption in Debugistan Reference Scenario – cont.

- Non-Government Payments -- Rules
 - trngovrow = exogenous GDP share (baseyr)
 - trfacrow = exogenous GDP share (baseyr)
 - fborngov = exogenous GDP share (baseyr)
 - fdiz = exogenous GDP share (baseyr)
- Saving-Investment Closure
 - exogenous GDP share (baseyr) with households savings rate as the clearing variable

Key Default Assumption in Debugistan Reference Scenario – cont.

- Factor Market Closure
 - f-labn = unemployment with wage curve
 - f-labs = unemployment with wage curve
 - f-labt = unemployment with wage curve
 - f-capprv = full employment
 - f-land = full employment

Running the Pre-Programmed Reference Scenario

- In order to run the pre-programmed reference scenario without changes, click on **Run Setup** in the **Setup** ribbon group.
- Once finished, click on **Run** in the **Simulations** ribbon group; this action will generate reports for the base scenario, which at this point is identical to the pre-programmed reference scenario.

Results from the Pre-Programmed Reference Scenario

- To navigate across an ISIM-MAMS application Excel file, use the **Navigation Tree** – to make it visible, click on the corresponding button in the **View** ribbon group.
- To see the reports, go to repmacro-contents, repmeso-contents, and dashboard.

Pre-Programmed Reference Scenario Results

Changing Assumption for the Pre-Programmed Reference Scenario

- Now, we will introduce changes in
 - government closure
 - rules for government spending
 - GDP growth rate
 - expenditure (income) elasticities

Changing Assumption for the Pre-Programmed Reference Scenario – cont.

- To change the government closure rule,
 - click on **Closure and Rules | Closure | Government** in the **Setup** ribbon group; it will add the **closure0-and-rules0** sheet to the current ISIM-MAMS application Excel file
 - in column 2009 of **govclos0**, select 2 instead of 5 (what is the meaning of option 2?)
 - now, run the model setup and base scenario; then, compare the results to the previous base scenario in terms of government receipts and spending – hint: see **govgdp** report parameter

Changing Assumption for the Pre-Programmed Reference Scenario – cont.

- To change the rules for government spending items,
 - click on **Closure and Rules | Rules | Government Spending | Government Spending**; it will add **govspndrule0** to the **closure0-and-rules0** sheet
 - what is the meaning of option 2?
 - then, replace the default selection for c-edutgov (i.e., Tertiary education, government) by 2

Changing Assumption for the Pre-Programmed Reference Scenario – cont.

- To change the government spending GDP share for different items,
 - click on **Closure and Rules | Rules | Government Spending | GDP Share for Government Spending** in the **Setup** ribbon group; it will add **govspndgdp0** to the **closure0-and-rules0** sheet
 - then, introduce a 15% yearly increase for c-edupgov, c-edusgov, c-edutgov and c-healthgov relative to the base year values – see next slide

Changing Assumption for the Pre-Programmed Reference Scenario – cont.

	A	B	C	D	E	F	G	H	I
19	govspndgdp0(ac,t1)		government spending on ac (GDP share) for model setup						
20	ac		2009	2010	2011	2012	2013	2014	2015
21	X	c-edupgov	0.0167	0.0192	0.0221	0.0254	0.0292	0.0336	0.0387
22	X	c-edusgov	0.0034	0.0039	0.0045	0.0051	0.0059	0.0068	0.0078
23	X	c-edutgov	0.0047	0.0055	0.0063	0.0072	0.0083	0.0095	0.0110
24	X	c-healthgov	0.0094	0.0108	0.0125	0.0143	0.0165	0.0190	0.0218
25	Add row								
26	Restore defaults								
27									

Question: how to compute base year values?

Changing Assumption for the Pre-Programmed Reference Scenario – cont.

- To change the GDP growth rate,
 - click on **GDP Growth** in the **Setup** ribbon group; it will add the sheet **gdpgrw** to the current ISIM-MAMS application Excel file
 - in columns 2010-2015 introduce alternative GDP growth rates

	A	B	C	D	E	F	G	
1	gdpgrw(t1)				<u>growth in real GDP at factor cost by year</u>			
2		2010	2011	2012	2013	2014	2015	
3		0.05791	0.0595	0.0625	0.07	0.07	0.07	
4	Restore defaults							
5								

Changing Assumption for the Pre-Programmed Reference Scenario – cont.

- To change the expenditure elasticities,
 - click on **Elasticities** in the Setup ribbon group; it will add the sheet **elasticities** to the current ISIM-MAMS application Excel file
 - in columns hhd of **leselas1** introduce alternative expenditure elasticities – note that the **dictionary** sheet provides a description of each commodity name abbreviation

Important!

- The Closure and Rules selected in the Pre-programmed Reference Scenario provide the defaults for subsequent simulations, but the defaults may be overwritten for all or some of the simulations where these are defined.