

Upgrading the CEA Macro model with a module for the Local Self Government

CENTER FOR ECONOMIC ANALYSES (CEA)

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Final Version

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Cover Letter

To: **Ms. Filip Blazeski**
 USAID BEA Project

Date: November 2007

Dear Mr. Blazeski,

I hereby submit the Final version of the work, conducted under the auspices of the project “Upgrading the CEA Macro model¹ with a module for the Local Self Government-LSG”.

This report explains the LSG Module as such, its main assumptions, linkages with the core CEA Macro model and the transmission mechanisms for LSG impact on the Macedonian economy in the model.

I sincerely hope that the study will meet your expectations and will lay the foundations of our further cooperation.

Yours sincerely,

Marjan Nikolov, MSc

President of CEA

¹ Originally this was the Macroabc model developed through USAID financial assistance together with the MMC from Holland.

INTRODUCTION

During 19-25 August 2007 at MMC's office in The Hague – The Netherlands, five economists from Macedonia built further the CEA Macro model.

The CEA Macro model consists of a database, using data from Annual Economic Report, www.finance.gov.mk, www.imf.org, www.nbrm.gov.mk and National Accounts of State Statistical Office Macedonia. In August 2007 a new sheet SOURCE has been made. The model file itself uses the consistency framework of Macroabc model originated from 2003. The coefficients in the behavioral equations initially were based on the Euralyse model (Macroabc for 15 EU countries), then calibrated, using the Macedonian data. More on the model and the visit to The Netherlands can be found at www.cea.org.mk and the there attached proceeding paper.

THE NEED FOR LSG MODULE IN THE CEA MACRO MODEL

With the fiscal decentralization process the municipalities obtained increased competencies in the local economic development and increased responsibilities in the social, education and health areas. With undertaking of new competencies the municipalities become directly responsible to provide services to their citizens and foster local businesses. In that regard, it becomes essential to better understand the role of the local self-government (LSG) in planning the economic development and their influence over overall national economy. This especially becomes true when the LSG will start to generate debt in order to reach the targets of their capital investment plans. Thus, the central government will need to make policy decisions that will require input as of the role of the local government in Macedonia on macroeconomic stability, economic growth, regional misbalances etc.

DATA

For the purpose of building the LSG module we took the budget data for the LSG in Macedonia for the period of 2000 – 2006. The source of data is the Ministry of Finance, reclassified according to the IMF methodology on the Government Finance Statistics (GFS). The budget items presentation is illustrated in the next table:

Table 1 - LSG budget categories in accordance with the GFS classification

Total LSG Revenue	Total LSG Expenditure
Tax revenue	Wages and allowances
<i>Personal income tax</i>	Goods and non-labour services
<i>Other tax revenue</i>	Current transfers
Non-tax revenue	Interest payments
Capital revenue	- on non-resident debt
Transfers from other levels of government	- on domestic debt
	- on other levels of government
	Capital expenditure
	Acquisition of capital assets
	Capital transfers
LSG overall balance	

LSG Financing	
Inflows	Outflows
Domestic borrowing	Repayment of principal
<i>Bank borrowing</i>	
<i>Sale of securities</i>	
<i>Other domestic financing</i>	
Foreign borrowing	

LINKAGES WITH THE CORE CEA MACRO MODEL

We linked the LSG data so that it is a part of the general government and not the market sector. In this way, the LSG sector becomes implicitly incorporated into the behavioral equations of the core CEA Macro model.

The following corrections were taken in the model for the LSG module forecasting.

Balance of non-tax revenue of general government (row 138) now includes LSG data
Direct taxes on households within general government data (row 141) now includes LSG data
Net material consumption (row 143) now includes LSG data
Public investment (row 144) now includes LSG capital expenditure
Wages and salaries (row 145) now includes the wage bill of LSG
Profit income (row 146) now includes interest payments by LSG

The effects of domestic borrowing of the LSG can be simulated in the SIM in % change year on year
The effects of foreign borrowing of the LSG can be simulated in the SIM in % change year on year
The effects of sale of securities by the LSG can be simulated in the SIM in % change year on year

Interest payments on non-resident debt in row 103 depends on the long-term interest rate
Interest payments on domestic debt in row 104 depends on long-term interest rate
Interest payments on other levels of government in row 105 depends on the short-term interest rate

TRANSMISSION MECHANISMS OF THE LSG IMPACT TO THE ECONOMY

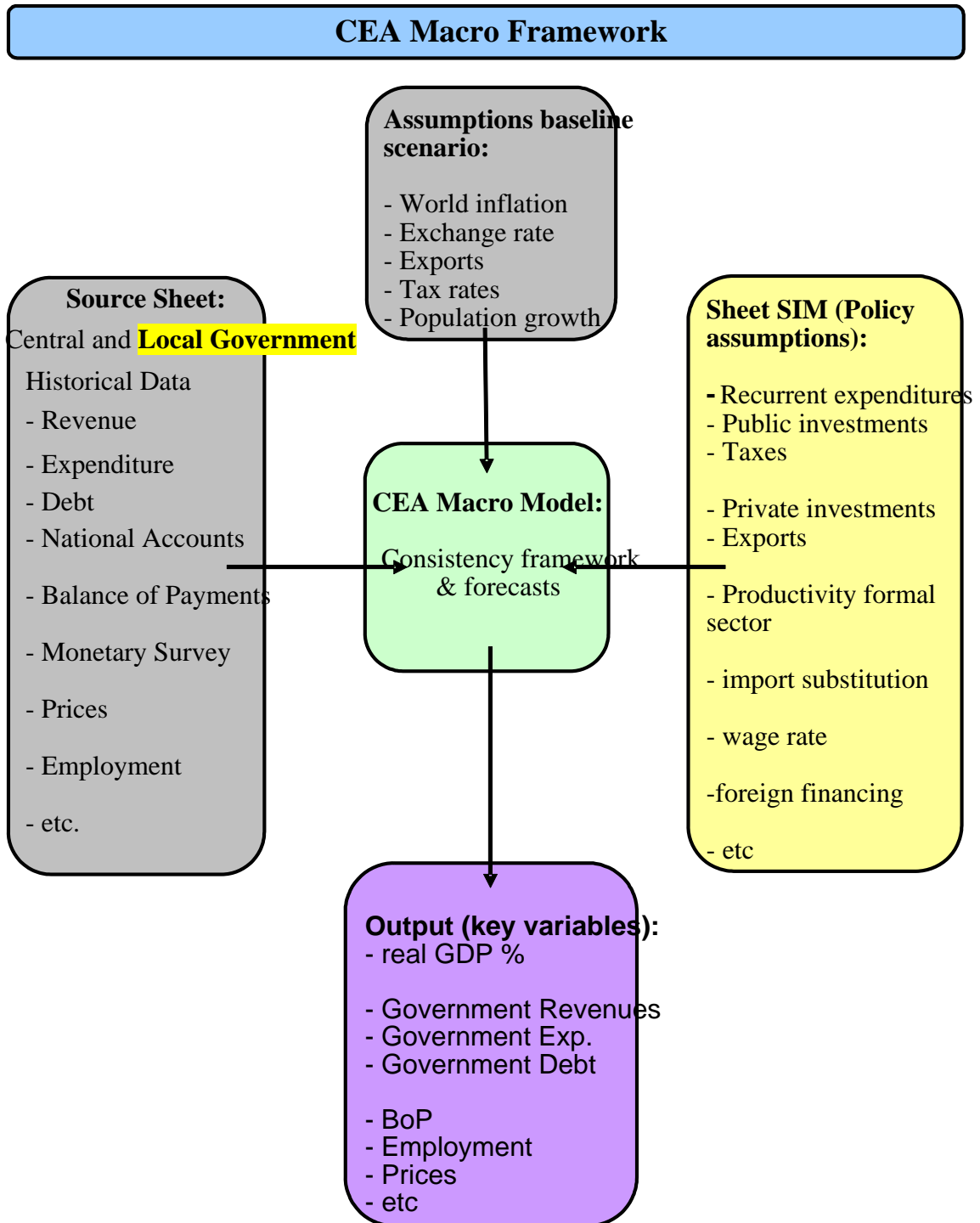
It was assumed that the LSG debt will add to the gross government debt. Moreover, the general government budget balance now includes the LSG budget balance, which is in line with the international standards. In this way the transmission mechanisms from the core model and their impact on the economy now include the LSG government actions as well.

Row 123 on gross government debt in Start model

Row 141 LSG budget balance in Start model

Row 145 formula updated with LSG budget balance

MACROABC FRAMEWORK



THE FINAL RESULTS OF THE PROJECT

- Data on LSG has been assembled and presented in line with the international standards (IMF's Government Finance Statistics classification)
- CEA Macro model has been updated with the new LSG module
- Linkages with the core CEA Macro model established and tested
- New baseline medium-term scenario and variants have been successfully tested.
- USAID, Macedonian Government and CEA have sound analytical framework for forecasting the impact of systemic or minor changes in LSG financing.

ANNEX 1. The Macedonian LSG and mid term CEA forecasts. Estimates by using the CEA Macro model.

Local Self-Government		2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total LSG Revenue		4388	4871	5559	8114	8254	8399	8550	8707	8869	9037	9211
Tax revenue	71	2888	3196	3293	3520	3660	3805	3956	4113	4275	4443	4617
Personal income tax			0	100	203	214	226	238	250	262	274	287
Other tax revenue			3196	3193	3317	3446	3580	3719	3863	4013	4169	4331
Non-tax revenue	72	156	310	189	1132	1132	1132	1132	1132	1132	1132	1132
Capital revenue	73	50	83	6	85	85	85	85	85	85	85	85
Transfers and grants	74	1294	1282	2071	3376	3376	3376	3376	3376	3376	3376	3376
Total LSG Expenditure		4109	4741	2491	4895	5066	5231	5390	5549	5715	5888	6069
Salaries and allowances	40	545	563	698	1202	1202	1202	1202	1202	1202	1202	1202
Goods and services	42	1460	1324	1554	3461	3632	3796	3955	4115	4280	4454	4635
Current transfers	44	279	195	3	0.2	0	0	0	0	0	0	0
Interest payments	45	8	3	0	0	0	0	0	0	0	0	0
- on non-resident debt	451			0	0	0	0	0	0	0	0	0
- on domestic debt	452			0	0	0	0	0	0	0	0	0
- on other levels of gov	453			0	0	0	0	0	0	0	0	0
Capital expenditure	48	1816	2656	236	233	233	233	233	233	233	233	233
Purchase of capital assets		1788	2643	236	233	233	233	233	233	233	233	233
Capital transfers		28	13	0	0	0	0	0	0	0	0	0
LSG overall balance		280	130	3068	3218	3188	3168	3161	3158	3154	3149	3142
LSG Financing		-280	-130	-3068	-3218	-3188	-3168	-3161	-3158	-3154	-3149	-3142
<i>Inflows</i>		-251	-114	-728	-950	-950	-950	-950	-950	-950	-950	-950
Domestic borrowing		-251	-114	-728	-950	-950	-950	-950	-950	-950	-950	-950
Bank borrowing	75	51	45	14	14	14	14	14	14	14	14	14
Other domestic financing		-302	-184	-742	-964	-1047	-1135	-1230	-1324	-1413	-1495	-1572
Sale of securities	77		25	0	0.2	0	0	0	0	0	0	0
Foreign borrowing	76			0	0	0	0	0	0	0	0	0
<i>Outflows</i>		30	15	2340	2268	2155	2047	1945	1848	1755	1667	1584
Repayment of princip	49	28	15	2340	2268	2155	2047	1945	1848	1755	1667	1584
Equity		1	0	0	0	0	0	0	0	0	0	0