

Hong Kong Institute for Monetary Research (HKIMR)
Macroeconomic Modelling Seminar

March 15–19, 2010

55/F & 56/F, Two International Finance Center
Central Hong Kong

This course will consist of two courses run in parallel, one on the Global Integrated Monetary and Fiscal Model (GIMF), and the other on the Global Projection Model (GPM).

In the case of the GIMF workshop, there will be computers provided with the relevant software (namely, FAME and TROLL) at the workshop site. However, in advance of the workshop, participants will be sent some introductory material for the TROLL and FAME platforms. In the case of GPM workshop, users are expected to have their own laptops, with a functioning version of MatLab. Participants will be expected to install and test additional software for use with MatLab that will be provided with installations instructions, in advance of the workshop. Computer programs for both workshops can be downloaded from www.douglaslaxton.org

Workshop Instructors:

Douglas Laxton (Head of Economic Modeling Unit, Research Department, IMF)

Ondra Kamenik (Senior Economist, Research Department, IMF)

Michael Kumhof (Senior Economist, Research Department, IMF)

Dirk Muir (Senior Economist, Research Department, IMF)

GIMF Course Overview:

This is a 5-day course on the Global Integrated Monetary Fiscal Model. GIMF is a large-scale multi-country DSGE model that can be used to do scenarios for the world economy. Participants will be introduced to the theory and how to conduct experiments on different versions of the model using TROLL and FAME.

GPM Course Overview:

This is a 5-day course on building Global Projection Models (GPMs) for forecasting and policy analysis. Representing the middle ground between micro-founded DSGE models and reduced-form econometric models, these small models can be useful for both forecasting and monetary policy analysis. Participants will learn how to use Bayesian methods in DYNARE to estimate versions of the models that include information on interest rates, exchange rates, inflation, GDP and unemployment. They will also be shown how to generate baseline and alternative scenarios with a 6-region version of GPM that includes the United States, Euro Area, Japan, Latin America, Emerging Asia, and a Remaining country block. Below is a brief summary of the models as well as references to applications available from the INTERNET.

Global Integrated Monetary Fiscal Model (GIMF)

This is a large-scale 5-region DSGE model (2600 equations) that is calibrated. The current production version (GIMF5) includes the United States, Japan and the Euro Area, Emerging Asia, and a Remaining-Country block. The model features non-Ricardian household and firm behavior, including short planning horizons and borrowing constraints, and a variety of fiscal instruments, including government consumption, government investment, distortionary taxes, lump-sum transfers, and transfers targeted to borrowing constrained agents.

As the name suggests GIMF has been designed for joint monetary and fiscal policy analysis. This has involved extending the workhorse infinite-horizon (IH) model that has been developed for monetary policy analysis to allow for non-Ricardian household and firm behavior. There are two main advantages of this type of model over an IH model. First, it is more general when trying to quantify the short-term consequences (multipliers) of fiscal stimulus, because the degree of non-Ricardian behavior can be calibrated. Second, it can provide a useful framework for studying the medium-term and longer term consequences of a buildup in government debt, including crowding-out effects on domestic capital accumulation and on foreign asset positions, the latter connecting directly to the question of global current account imbalances.

GIMF References:

Freedman, C., M. Kumhof, D. Laxton, D. Muir and S. Mursula, 2009, "Fiscal Stimulus to the Rescue? Short-Run Benefits and Potential Long-Term Costs of Fiscal Deficits," IMF Working Paper No. 09/255 (Washington, DC.: International Monetary Fund), available at <http://www.imf.org/external/pubs/cat/longres.cfm?sk=23409.0>

Kumhof, M. and D. Laxton, 2007, "A Party Without a Hangover? On the Effects of U.S. Fiscal Deficits" IMF Working Paper 07/202 (August 2007), available at <http://www.imf.org/external/pubs/ft/wp/2007/wp07202.pdf>

Freedman, C., M. Kumhof, D. Laxton, and J. Lee, 2009, "The Case for Global Fiscal Stimulus," IMF Staff Position Paper No. 09/04 (Washington, DC.: International Monetary Fund) , available at <http://www.imf.org/external/pubs/ft/spn/2009/spn0903.pdf>

Kumhof, M. and D. Laxton, 2009, "Chile's Structural Fiscal Surplus Rule: A Model-Based Evaluation," IMF Working Paper 09/88 (April 2009), available at <http://www.imf.org/external/pubs/ft/wp/2009/wp0988.pdf>

Kumhof, M. and D. Laxton, 2009, "Simple, Implementable Fiscal Policy Rules," IMF Working Paper 09/76 (April 2009), available at <http://www.imf.org/external/pubs/ft/wp/2009/wp0976.pdf>

Kumhof, M. and D. Laxton, 2009, "Fiscal Deficits and Current Account Deficits," IMF Working Paper 09/237 (October, 2009), available at <http://www.imf.org/external/pubs/ft/wp/2009/wp09237.pdf>

Kumhof, M., D. Laxton, D. Muir and S. Mursula, 2010, "The Global Integrated Monetary Fiscal Model: Theoretical Structure," available at <http://www.imf.org/external/pubs/ft/wp/2010/wp1034.pdf>

Global Projection Model (GPM)

This is a small-scale multi-country model estimated with Bayesian methods. The current production version (GPM3) includes the United States, Japan and the Euro Area, but the GPM team is in the process of extending it to include Emerging Asia, Latin America and a Remaining-Country block (GPM6). This model includes observables for GDP, CPI, unemployment, policy rates, exchanges rates, oil prices and measures of bank-lending tightening. We currently use this model for risk assessments and are in the process of using it to help impose more consistency in the WEO projections. This model is being developed with a number of central banks that are interested in using it to generate their external assumptions. A number of them are also developing open-economy versions for their own countries, which can be linked directly to GPM3 or GPM6.

GPM References:

Alichi, A., H. Chen, K. Clinton, C. Freedman, M.J. Johnson, O. Kamenik, Turgut Kisinbay, and D. Laxton, 2009, "Inflation Targeting Under Imperfect Policy Credibility," IMF Working Paper 09/94 (April 2009), available at <http://www.imf.org/external/pubs/cat/longres.cfm?sk=22494.0>

Andrle, M., C. Freedman, R. Garcia-Saltos, D. Hermawan, D. Laxton, and H. Munandar, 2009, "Adding Indonesia to the Global Projection Model," IMF Working Paper 09/255 (November 2009), available at <http://www.imf.org/external/pubs/cat/longres.cfm?sk=23227.0>.

Carabenciov, I., I. Ermolaev, C. Freedman, M. Juillard, O. Kamenik, D. Korshunov, and D. Laxton, 2008, "A Small Quarterly Projection Model of the U.S. Economy," IMF Working Paper No. 08/278 (Washington, DC.: International Monetary Fund), available at <http://www.imf.org/external/pubs/cat/longres.cfm?sk=22502.0>

Carabenciov, I., I. Ermolaev, C. Freedman, M. Juillard, O. Kamenik, D. Korshunov, D. Laxton, and J. Laxton, 2008a, "A Small Multi-Country Global Projection Model," IMF Working Paper No. 08/279 (Washington, DC.: International Monetary Fund), available at <http://www.imf.org/external/pubs/cat/longres.cfm?sk=22487.0>

Carabenciov, I., I. Ermolaev, C. Freedman, M. Juillard, O. Kamenik, D. Korshunov, D. Laxton, and J. Laxton, 2008b, “A Small Multi-Country Global Projection Model with Financial-Real Linkages and Oil Prices,” IMF Working Paper No. 08/280 (Washington, DC.: International Monetary Fund), available at <http://www.imf.org/external/pubs/cat/longres.cfm?sk=22497.0>

Canales-Kriljenko, J., C. Freedman, R. Garcia-Saltos, M. Johnson, and D. Laxton, “Adding Latin America to the Global Projection Model, IMF Working Paper 09/85 (April 2009), available at <http://www.imf.org/external/pubs/cat/longres.cfm?sk=22886.0>

Chen, H., K. Clinton, M. Johnson, O. Kamenik, and D. Laxton, 2009, “Constructing Forecast Confidence Bands During the Financial Crisis,” IMF Working Paper 09/214 (September 2009), available at <http://www.imf.org/external/pubs/cat/longres.cfm?sk=23321.0>