The Global Economy Model (GEM): Q & A

By Douglas Laxton

What is the GEM and where did it originate from?

The Global Economy Model (GEM) is a new multicountry simulation model. When Kenneth Rogoff took over as the director of the Research Department, one of his key priorities was to develop a new macro model for both research and policy analysis, bridging the gap between recent developments in academia and models used by policymaking institutions. The GEM builds on the new open-economy macro (NOEM) literature pioneered by Obstfeld and Rogoff (1995, 1996; see also other references at *www.imf.org/external/np/res/mmod/biblio/ multimod.cfm*). The IMF invited Paolo Pesenti of the New York Fed and National Bureau of Economic Research to lead the project by developing the theoretical structure for the GEM. Last year Paolo Pesenti and I developed the first working version of the GEM and presented it at the Carnegie-Rochester Conference on Public Policy (Laxton and Pesenti, 2003).

What are the main strengths of NOEM models such as the GEM?

These structural models have strong theoretical foundations based on microeconomic theory. Unlike reduced-form models, they are not as prone to the Lucas critique and can therefore be used more reliably for policy analysis. In practice, they are relatively easy to use when addressing issues that interest policymakers. The GEM incorporates nominal rigidities and monopolistic competition in both product and labor markets. This helps distinguish between the relative roles of market inefficiencies and monetary policy in generating inflation persistence. It is thus possible to conduct well-defined experiments to show how changes in structural policies, which influence the degree of competition in markets, may change the degree of inflation persistence, and to trace the implications for the business cycle and the optimal formulation of monetary policy. Bayoumi, Laxton, and Pesenti (2003) show that increases in the degree of competition in labor markets and product markets can significantly reduce inflation persistence, thus making it easier to successfully implement monetary policy.

What other GEM-related research and applications are in the works?

Building on research conducted at the Fed Board, Hunt and Rebucci (2003) have developed a version of the GEM to explore the role of U.S. productivity growth in the 1990s in explaining the deterioration in the U.S. trade balance. They show that multisector models such as the GEM can help us better understand the implications of productivity growth when it is concentrated in the tradables sector. Also, the current versions of the GEM have been calibrated: following work done by Frank Smets of the European Central Bank and Raf Wouters of the National Bank of Belgium, we are now trying to estimate the model using Bayesian methods.

What about documentation and code?

The model is still at an early stage and additional refinements are being introduced. That said, an IMF working paper by Paolo Pesenti will document the theoretical structure of the model. We are also planning to release an IMF occasional paper later in the year that will include applications, solution techniques, and estimation methodology. Ultimately, we plan to make some versions of the model and sample programs available to the public.

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