

Institutional use of GTAP Data and Model at the World Bank—2000/2001

The World Bank continues to be an active user of the GTAP database and model. Most of the work over the last year has continued to use the Version 4 database, but a number of users are now switching to Version 5. The bulk of the applications are centered on trade issues for specific *regions/countries*. Jeff Lewis and his colleagues have focused on various trade arrangements for Southern Africa, and have recently started work with GTAP5 which has more extensive coverage of the economies in the region. Will Martin, Elena Ianchovichina, and Emiko Fukase have published a variety of papers regarding changing trade regimes in China (e.g. WTO accession) and Vietnam (trade agreement with the United States), and on regional trade agreements in Asia.

Ongoing work is attempting to assess the impact of openness in Latin America on income distribution. The latter is part of a larger effort at the World Bank to integrate *poverty assessment and income distribution* in economic analysis. This is a multi-pronged approach using global and national GE analysis, micro-simulation models, and survey analysis. Applications using these various approaches were presented at a Bank sponsored conference¹ held in Stockholm in October, 2000 (the papers are available at <http://www1.worldbank.org/wbiep/trade/povertyconf.html>). The Bank is also promoting the development of a multiple household version of the GTAP database to integrate directly distributional aspects of policy changes in the GTAP model.

While never abandoned, global applications have become a more prominent focus of Bank applications in the last year as *international trade* has become a key priority of the Bank Group. The Bank's Board and the Development Committee are focusing more attention on global trade issues, particularly in light of efforts to make the next global trade round the "Development Round." The Trade Group has undertaken a number of studies which have highlighted the impacts of deeper reforms on developing countries. A number of these studies have been published (see below), but many have also been the object of background notes for Board and Development Committee meetings. These analyses will also be used as material for the Bank's forthcoming report on globalization (scheduled for release in September). Finally, the Prospect Group will be using the latest release of the GTAP database to assess the impacts of trade reform scenarios for this year's Global Economic Prospects scheduled for release in the first week of November.

Development continues on various dynamic versions of GE models. Elena Ianchovichina has been involved in a dynamic version of the GTAP model including an application to analyze resource use and productivity in agriculture. The Prospects Group is using its own dynamic model (based on the GTAP database) for assessing the plausibility of its long-term growth scenarios. Enhanced features include dynamically calibrated consumer demand systems, introduction of short- and long-run Armington elasticities, and using mixed complementarity (MCP) to model vintage capital and capital allocation.

Other additions to model specification include the development of a new version of the GTAP model that incorporates the effects of duty exemptions. This was applied to China, but is applicable in many countries to questions involving trade reform or the establishment or phase-out of duty exemption/drawback schemes. The paper by Lee and van der Mensbrugghe modeled bilateral FDI flows to assess the importance of investment restrictions relative to trade restrictions in APEC economies.

The World Bank has been active in assisting the GTAP consortium with integrating trade flows and trade barriers into the new release of the GTAP database. This have involved combining data from UNCTAD's

¹ Co-sponsored with the Parliamentary Commission on Swedish Policy for Global Development.

TRAINS and COMTRADE databases into the Bank's WITS (World Integrated Trade Solutions) software.

(Partial) list of publications

Global applications

Hertel, Tom and Will Martin (2000), "Liberalizing agriculture and manufactures in a Millennium Round: implications for developing countries," *World Economy* 23(4): 455-69.

Hoekman, Bernard and Will Martin (1999), "Some market access issues for developing countries in a Millennium Round: results from recent World Bank research," *Cuadernos de Economia*, 36(109): 947-78.

Region specific applications

Africa

Ianchovichina, Elena, Aaditya Mattoo, Marcelo Olarreaga (2001), "Unrestricted Market Access for Sub-Saharan Africa: How much is it worth and who pays?" Discussion Paper No. 2820, *Centre for Economic Policy Research*, June 2001 (www.cepr.org/pub/dps/DP2829.asp).

Lewis, Jeffrey D., Sherman Robinson, and Karen Thierfelder (2001). "Free Trade Agreements and the SADC Economies," Paper being presented at the *Fourth Annual Conference on Global Economic Analysis*, June 27-29, 2001, Purdue University.

Lewis, Jeffrey D. (2001). "Reform and Opportunity: The Changing Role and Pattern of Trade in South Africa and SADC," Africa Region Working Paper Series No. 14. Washington, DC: The World Bank.

Lewis, Jeffrey D., Sherman Robinson, and Karen Thierfelder (1999). "After the Negotiations: Assessing the Impact of Free Trade Agreements in Southern Africa," Trade and Macroeconomics Division Working Paper No. 46, IFPRI, Washington, DC (September)

China

Ianchovichina, Elena (2001), "China's WTO Accession and Export Processing Trade," Policy Note, World Bank.

Ianchovichina, Elena, Will Martin, Emiko Fukase (2000), "Modeling the Impact of China's Accession to the WTO," 3rd Annual Conference on Global Economic Analysis, Monash University, Australia, June 27-30, 2000 (www.monash.edu.au/policy/conf/cnprog1.htm).

Ianchovichina, Elena, Will Martin, Emiko Fukase (2000), "Assessing the Implication of Merchandise Trade Liberalization in China's Accession to WTO," presented to the Roundtable on China's Accession to the WTO sponsored by the Chinese Economic Society and the World Bank, July 8, 2000, Pudong, Shanghai, and the WBI Training Seminar in Beijing, July 10-11.

Martin, Will, Betina Dimaranan, Tom Hertel, and Elena. Ianchovichina (2000), "Trade Policy, Structural Change and China's Trade Growth," Working Paper No. 64, Stanford Institute for Economic Policy Research, Stanford University (<http://credpr.stanford.edu>).

Other Asia

Fukase, Emiko and Will Martin (2001), "Free Trade Area Membership as a Stepping Stone to Development: The Case of ASEAN," *World Bank Discussion Paper* No. 421.

Fukase, Emiko and Will Martin (2000), "The effects of the United States granting MFN status to Vietnam", *Weltwirtschaftliches Archiv*.

Ianchovichina, Elena, Will Martin, and Christina Wood (2000) "Economic Effects of the Vietnam-US Bilateral Trade Agreement," manuscript, World Bank.

Lee, Hiro and Dominique van der Mensbrugge (2001), "Interactions between Direct Investment and Trade in the Asia-Pacific Region," Paper being presented at the *Fourth Annual Conference on Global Economic Analysis*, June 27-29, 2001, Purdue University.

Martin, Will (2001), "Trade reform in the East Asian Transition Economies," *World Bank Policy Research Working Paper*.

Latin America

Ianchovichina, Elena, Alessandro Nicita, Isidro Soloaga (2000) "Implications of Trade Reform on the Distribution of Income in Mexico", the Conference on Poverty and the International Economy, October 20-21, 2000, Stockholm, Sweden, and PREM Week, University of Maryland, November, 2000 (www.worldbank.org/trade).

Model developments

Ianchovichina, Elena, R. Darwin, R. Shoemaker (2000) "Resource Use and Technological Progress in Agriculture: A Dynamic General Equilibrium Analysis," forthcoming in *Ecological Economics*.

Ianchovichina, Elena and Robert McDougall (2000), "Theoretical Structure of Dynamic GTAP", GTAP Technical Paper No. 17, Purdue University, December (www.agecon.purdue.edu/gtap/).