U. S. International Trade Commission
Report on GTAP Related Activities

For

The Advisory Board Meeting,
Center for Global Trade Analysis

June 13-14, 2011
Venice, Italy

The United States International Trade Commission (USITC) uses GTAP to evaluate the potential impacts of prospective trade policy changes, in response to requests from the United States Trade Representative (USTR) and Congress. Recently, the GTAP data and model have been applied to analyze China's IPR policies, certain provisions of the modified U.S.-Korea FTA, and U.S. food and agricultural exports to China. In addition, the GTAP database was used to provide trade-policy related technical assistance to the Senate Finance Committee, the House Ways and Means Committee, and the USTR on a variety of topics related to U.S. free trade agreements.

As part of the USITC's mission of providing analytical support to executive and legislative branches, USITC staff conducted a study of the effects on the United States of improved policies and practices to protect intellectual property rights in China (USITC, 2011c). Econometric analysis provided estimates of the potential increases in exports of U.S. goods and services resulting from improved policies, and then applied these trade changes to GTAP to estimate effects on the U.S. economy. These effects were then imposed in a GTAP simulation to obtain other effects (GDP and wages). In addition to sensitivity analysis regarding the magnitudes of the econometrically estimated effects, the study explored the implications of different assumptions about labor markets, i.e., flexible vs. fixed labor wages.

Congress requested the USITC to update its 2007 assessment of certain provisions of the original 2007 U.S.-Korea FTA which were modified in December 2010 (USITC 2011a). Differences between U.S. and Korean safety and emission standards for passenger cars act as NTMs on U.S. exports to Korea. The original 2007 U.S.-Korea FTA exempted a certain level of U.S. passenger cars from Korean standards. In December 2010, changes to certain FTA provisions raised the level of excepted U.S. passenger cars. An analysis of the 2010 passenger car amendments relied on a modified GTAP framework that modeled the sourcing of imported products at the industry and consumer level. This feature of the model allowed for a more precise specification of the simulated

removal of Korean NTMs on U.S. passenger cars.

In collaboration with Monash University, the USITC continues work on the highly detailed dynamic USAGE-ITC model with additional sectoral and policy detail, including detailed treatment of sweeteners, ethanol, and biomass sectors, the modeling of land use in U.S. agriculture involving 72 types of land, and the explicit modeling of TRQ policies. Work on the USAGE-ITC model also influences the USITC's contribution of the U.S. data for the GTAP database. The USAGE-ITC model is currently applied in the forthcoming study of *Significant U.S. Import Restraints* that has been requested by the USTR (USITC 2011d). The USAGE-ITC model is easily linkable to the GTAP model, and will offer interested parties a new U.S. model with powerful capabilities. In December 2010, Peter Dixon and Maureen Rimmer gave a fifth Short Course at the USITC on the use of the model.

During the next phase of the USAGE project, the team aims to disaggregate households in the model to enhance welfare analysis and incorporate an investment/rate-of-return module for use in dynamic policy simulations. In support of this and other USAGE developments, the USITC has established an informal consortium with other Federal Government users of the USAGE model, principally the International Trade Administration of the Commerce Department and the Economic Research Service of the Department of Agriculture, though USAGE has also been used in studies for the Department of Homeland Security and the Federal Aviation Administration.

A major initiative of the USITC concerns research and analysis on global value chains. We are developing a time series global of input-output data. Our efforts are on two parallel tracks. First, we plan to provide a workable dataset for our global value chain analysis and AGE modeling of processing trade, we first constructed a single year global ICIO table based on version 7 GTAP database and processing trade information for China and Mexico. The initial allocation of bilateral trade flows in the GTAP database into intermediate and final uses is based on UN BEC (Broad Economic Categories) method and detailed trade statistics at 6-digit HS code. We use China's expanded I-O table with separate accounts for processing exports from Koopman, Powers, Wang and Wei (2010) and we obtained 2003 Mexico I-O table with separate domestic and Maquiladora accounts. We integrate China and Mexico's I-O table with version 7 GTAP database by a quadratic mathematical programming model to minimize the deviation between the new data and the original

GTAP data. The new database covers 26 countries and 41 sectors and was used to support our initial global AGE modeling and value-chain analysis efforts. We computed gross, intermediate and value-added bilateral trade flows and initial decomposition of value-added trade and computation of various indexes, which now is for internal review and test use. We will update this database based on version 8 GTAP database for the year 2004 and 2007. Parallel with this track, we also in a process to develop a modeling framework, which is able to integrate individual country's national account statistics with detailed bilateral trade data. We are testing the model using most recent version of OECD IO database and detailed bilateral trade statistics from UN, OECD and IMF.

In a major data and model infrastructure project at the USITC, we are in the process of constructing an FDI database focusing on services, providing data on country of origin, host country, and sector of investment. Further, the project should collect assessments of barriers to FDI in order for the USITC to use these assessments in policy analysis. The FDI in services project will serve as the basis for our research on the relationship between FDI, domestic employment, and its effects on the services sector. The main contribution of the current FDI project is in the data. Prior efforts at modeling FDI in a CGE framework use FDI stocks as a proxy for allocating foreign affiliates output and sales data. For example, the FTAP model uses U.S. FDI data as a basis for allocating these data for all other countries. However, according to Beugelsdijk *et al.*, 2010, FDI stocks are a biased measure of the activity of foreign affiliates. By contrast, our project makes use of foreign affiliate operations data, which allows us to directly estimate sales and value added shares of foreign affiliate activity by country of ownership and sector. We also use a broader set of countries (from Eurostat database) to make these estimates. The modeling is not qualitatively different from what has been done, but results are sensitive to the data on which the model is calibrated.

Quantitative analysis of nontariff trade measures remains important to the USITC's efforts in the modeling of trade, and this research continues to focus on quantification of NTM's for use in models such as GTAP and USAGE. In 2010, we explored new quantitative techniques in the course of our Congressionally mandated study into China's agricultural barriers linking the GTAP model to a product specific partial equilibrium model (USITC 2011b).

In broader work on NTMs, staff have been engaged in collecting and classifying information on non-tariff measures (NTMs) in the form of a unified database to be used as a reference tool for staff

research. The latest release, referred to as the CoRe NTMs Database, builds on prior efforts published in the Donnelly-Manifold database, expanding the country coverage, incorporating several changes in the classification scheme, and adding the most recent information available. The Database is described and available in Martinez, Mora and Signoret (2009). Currently, USITC staff are doing analysis with UNCTAD's survey data, and looking at "lessons learned" from our India and China agriculture studies (USITC 2009 and 2011b).

The following USITC public studies or papers by USITC economists completed during 2010 and 2011 contain research based on, or relevant to, the GTAP model and database:

Monographs

USITC. 2009. *India: Effects of Tariff and Nontariff Measures on U.S. Agricultural Exports*, USITC Publication 4107, Nov. Available at http://www.usitc.gov/publications/332/pub4107.pdf.

USITC. 2011a. *U.S.-Korea Free Trade Agreement: Passenger Vehicle Sector Update*, USITC Publication 4220. March 2011. Available at http://www.usitc.gov/publications/332/pub4220.pdf.

USITC. 2011b. *China's Agricultural Trade: Competitive Conditions and Effects on U.S. Exports*, Investigation No. 332-518. USITC Publication 4219. March. Available at http://www.usitc.gov/publications/332/pub4219.pdf.

USITC, 2011c. *China: Effects of Intellectual Property Infringement and Indigenous Innovation Policies on the U.S. Economy*, USITC Publication 4226. May. Available at http://www.usitc.gov/publications/332/pub4226.pdf.

USITC, 2011d. *The Economic Effects of Significant U.S. Import Restraints: Seventh Update 2011,* forthcoming.

Manuscripts

Martinez, A., J. Mora, and J. E. Signoret. 2009. "The CoRe NTMs Database: A Compilation of Reported Non-Tariff Measures," Office of Economics Working Paper No. 2009-12A, U.S. ITC, Dec. Available at http://www.usitc.gov/publications/332/working_papers/EC200912A.pdf.

Koopman, R., W. Powers, Z. Wang and S.J. Wei. 2010. "Give Credit Where Credit Is Due: Tracing Value Added in Global Production Chains," NBER Working Paper 16426, September.

Rosen, D. and Z. Wang. 2010. *The Implications of China-Taiwan Economic Liberalization*. Peterson Institute of International Economics, Washington DC, December.

Koopman, R., W. Powers, Z. Wang and S.J. Wei. 2010. "Give Credit Where Credit Is Due: Tracing Value Added in Global Production Chains," presentation, OECD and World Bank Technical Workshop: New Metrics for Global Value Chains. September, Paris.