

U.S. Environmental Protection Agency

2009 GTAP Advisory Board Report

GTAP-related activities ongoing within the U.S. EPA include:

National Center for Environmental Economics, Office of Policy, Economics, and Innovation

- Using GTAP data, a global CGE model (solved in GAMS) has been developed to explore the coordination of trade and environmental policies. The standard GTAP data base was augmented with data on taxes and labor market distortions. The model incorporates a flexible labor supply and a government budget closure that requires that distortionary taxes be used to make up for reductions in government revenues following trade liberalization. Recently, this model has been used in a project with Resources for the Future (RFF) to assess the competitiveness impacts of carbon dioxide pricing policies on manufacturing in the United States. Results of the analysis are presented in the RFF discussion paper “Impact of Carbon Price Policies on U.S. Industry” (November 2008).
- In a separate project, NCEE’s Trade and Environmental Assessment Model (TEAM) has been interfaced with the standard GTAP model. TEAM converts aggregate economic results from the GTAP model into changes in the U.S. for approximately 1,200 sectors, and reports environmental outcomes for nine pollutant categories covering 1,100 chemicals in water, air, agriculture, and hazardous waste. Model simulations have looked at the environmental effects of issues such as the worldwide removal of domestic subsidies and global trade liberalization.

Climate Economics Branch, Climate Change Division, Office of Atmospheric Programs

- The Climate Economics Branch in EPA's Climate Change Division has a 5-year cooperative agreement with the GTAP project that has just entered its fifth year. The project is entitled “Dynamic Global Economic Modeling of Greenhouse Gas Emissions and Mitigation from Land-Use Activities.” The project’s goal is to advance dynamic global economic modeling of greenhouse gas emissions and mitigation from land-use, land-use change, and forestry activities (LULUCF). Specifically, the project addresses the needs of the international modeling community for more accurate and comprehensive land-use activity data and modeling elements by: (1) refining and extending GTAP’s current basic land-use database, (2) developing land-use modeling within a dynamic global general equilibrium economic framework to appropriately evaluate land-use mitigation alternatives relative to energy-related mitigation alternatives over time, and (3) developing dynamic general equilibrium modeling of LULUCF in stages that provide the modeling community with useful intermediate tools on which to build. The principal investigator for the project is Dr. Thomas Hertel, Executive Director, Center for Global Trade Analysis at Purdue University. The project draws on collaboration with EPA's principal researcher, Dr. Adam Daigneault, and co-PIs Dr. Brent Sohngen, Ohio State University, and Dr. Navin Ramankutty, McGill

University. The project has produced a variety of products, including global datasets of land-use, land cover, forest inventories and carbon stocks, and non-CO₂ greenhouse gas emissions, as well as made a significant contribution to a newly published book on land-use modeling in CGE models (Rose, Hertel, and Tol, 2009) as well a number of conference and journal papers.