Joint Program on the Science and Policy of Global Change
Massachusetts Institute of Technology

GTAP-related activities, 2006

The MIT Joint Program on the Science and Policy of Global Change made extensive use of the GTAP data set for research and analysis conducted in the program over the past year (see the following publication list). GTAP data serves as the principal economic data for the Program's Emissions Prediction and Policy Analysis (EPPA) Model, a global CGE model of the world economy with details on the energy sector and on emissions of greenhouse gases and other air pollutants. The EPPA model is a component of the Program's Integrated Global Systems Model (Box 1), a model that represents the earth's oceans, atmosphere, and terrestrial systems as they are affected by emissions of greenhouse gases and other pollutants.

Box 1. The MIT Integrated Global Systems Model (IGSM). The EPPA model is part of a complete model of the earth system model (depicted below) that includes models of the terrestrial systems, oceans, and the atmosphere. It has been used in a variety of applications and its components and applications using the full system have been published in the peer reviewed literature. Additional reports, technical notes and journal articles describing the system and applications of it available at http://web.mit.edu/globalchange/www/reports.html

The schematic depicts the current framework and processes of the MIT Integrated Global System Model Version 2 (IGSM2).

2006 AND 2007 PUBLICATIONS USING GTAP (AS OF APRIL 2007)

Journal articles and other publications:

Kasahara, S., S. Paltsev, J. Reilly, H. Jacoby and A.D. Ellerman (2007). "Climate Change Taxes and Energy Efficiency in Japan," *Environmental and Resource Economics*, in press.

Reilly, J., S. Paltsev, B. Felzer, X. Wang, D. Kicklighter, J. Melillo, R. Prinn, M. Sarofim, A. Sokolov, C. Wang (2007). "Global Economic Effects of Changes in Crops, Pasture, and Forests due to Changing Climate, Carbon Dioxide, and Ozone", *Energy Policy*, in press.

Matus, K., T. Yang, S. Paltsev, J. Reilly and K-M. Nam (2007). "Economic benefits of air pollution regulation in the USA: An integrated approach", *Climatic Change*, in press.

Paltsev, S., J. Reilly, H. Jacoby, and K. Tay (2007). How (and why) do climate policy costs differ among countries? In: *Integrated Assessment of Human-induced Climate Change* [M. Schlesinger, ed.], Cambridge University Press, in press.

U.S. Climate Change Science Program (CCSP). 2006. *CCSP Synthesis and Assessment Product 2.1, Part A: Scenarios of Greenhouse Gas Emissions and Atmospheric Concentrations*, L. Clarke et al., US Climate Change Science Program, Draft for CCSP Review, December 06, 2006

Jacoby, H.D., J. Reilly, J. McFarland and S. Paltsev (2006). "Technology and technical change in the MIT EPPA model," *Energy Economics,* 28, 610-631.

Reilly, J. and S. Paltsev (2006). "European Greenhouse Gas Emissions Trading: A System in Transition," in *Economic Modeling of Climate Change and Energy Policies,* M. De Miguel, X. Labandeira, B. Manzano (eds.), 2006, Edward Elgar Publishing, 45-64.

Reilly, J.M, M. Sarofim, S. Paltsev and R.G. Prinn (2006). "The role of non-CO_2 greenhouse gases in climate policy: Analysis using the MIT IGSM." *Energy Journal*, Special Issue Multi-Greenhouse Gas Mitigation and Climate Policy, 503-520.

McFarland, J, and H. Herzog (2006). "Incorporating carbon capture and storage in integrated assessment models" *Energy Economics,* 28, 632-652.

Sue Wing, I. (2006). "Representing induced technological change in models for climate policy analysis" *Energy Economics,* 28, 539-562.

Schafer, A. and H. Jacoby (2006). "Vehicle technology under CO2 constraint: A general equilibrium analysis" *Energy Policy,* 34, 975-985.

MIT Joint Program Reports:

(Available at http://web.mit.edu/globalchange/www/reports.html)

Report 146. Assessment of U.S. Cap-and-Trade Proposals
Paltsev, S., J. Reilly, H. Jacoby, A. Gurgel, G. Metcalf, A. Sokolov & J. Holak (April 2007)

Report 145. Biomass Energy and Competition for Land
Reilly, J., & S. Paltsev (April 2007)

Report 144. Heavier Crude, Changing Demand for Petroleum Fuels, Regional Climate Policy, and the Location of Upgrading Capacity: A Preliminary Look
Reilly, J., S. Paltsev & F. Choumert (April 2007)

Report 139. Directed Technical Change and the Adoption of CO2 Abatement Technology: The Case of CO2 Capture and Storage
Otto, M.V., & J. Reilly (August 2006)

Report 137. Unemployment Effects of Climate Policy
Babiker, M., & R.S. Eckaus (July [Revised August] 2006)

Report 134. Directed Technical Change and Climate Policy
Otto, V.M., A. Löschel & J. Reilly (April 2006)

Report 132. The Value of Emissions Trading
Webster, M., S. Paltsev & J. Reilly (February 2006) [abstract] [PDF: 575 kB]

MIT Joint Program Technical Notes:

(Available at http://web.mit.edu/globalchange/www/reports.html#tn)

Technical Note 11. Computing Tax Rates for Economic Modeling: A Global Dataset Approach A. Gurgel, G. Metcalf, N. Osouf & J. Reilly (January 2007)

Technical Note 9. Improving the Refining Sector in EPPA F. Choumert, S. Paltsev & J. Reilly (July 2006)