

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

GTAP-related activities, 2008

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, a model that represents the earth's oceans, atmosphere, and terrestrial systems as they are affected by emissions of greenhouse gases and other pollutants.

The EPPA and IGSM models were used for variety of applications. Some of them are listed below:

2008 AND 2009 PUBLICATIONS USING GTAP (AS OF MAY 2009)

Journal Articles:

McFarland, J.R., S. Paltsev and H.D. Jacoby: Analysis of the coal sector under carbon constraints, *Journal of Policy Modeling*, 2009, **31**(3): 404-424.

Antoine, B., A. Gurgel and J.M. Reilly: Will Recreation Demand for Land Limit Biofuels Production? *Journal of Agricultural & Food Industrial Organization*, 2008, **6**(2): Article 5.

Matus, K., T. Yang, S. Paltsev, J. Reilly and K.-M. Nam: Toward integrated assessment of environmental change: Air pollution health effects in the USA, *Climatic Change*, 2008, **88**(1): 59-92.

Otto, V.M., and J. Reilly: Directed technical change and the adoption of CO₂ abatement technology: The case of CO₂ capture and storage, *Energy Economics*, 2008, **30**(6): 2879–2898.

Paltsev, S., J. Reilly, H. Jacoby, A. Gurgel, G. Metcalf, A. Sokolov and J. Holak: Assessment of US GHG cap-and-trade proposals, *Climate Policy*, 2008, **8**(4): 395-420.

Van Vuuren, D.P., M. Meinshausen, G.-K. Plattner, F. Joose, K.M. Strassmanne, S.J. Smith, T.M.L. Wigley, S.C.B.Raper, K. Riahi, F. de la Chesnaye, M.G.J. den Elzena, J. Fujino, K. Jiang, N. Nakicenovic, S. Paltsev and J.M. Reilly: Temperature increase of 21st century mitigation scenarios, *Proceedings of the National Academy of Sciences*, 2008, **105**(40):15,258-15,262.

Webster, M.D, S. Paltsev and J.M. Reilly: Autonomous efficiency improvement or income elasticity of demand: Does it matter? *Energy Economics*, 2008, **30**(6): 2785-2798.

Chapters in Books:

Paltsev, S., and J. Reilly: Energy Scenarios for East Asia, 2005-2025, in: *From Growth to Convergence: Asia's Next Two Decades*, F. Zhai (editor), 2009, Palgrave-Macmillan, pp. 211-239.

Reilly, J., and S. Paltsev: Biomass energy and competition for land, in: *Economic Analysis of Land Use in Global Climate Change Policy*, T. Hertel, S. Rose, R. Tol (eds.), 2009, Routledge, pp 184-207.

Schafer, A., J. Heywood, H. Jacoby and I. Waitz: *Transportation in a Climate-Constrained World*, 2009, MIT Press, Cambridge, MA, 384 p.

MIT Joint Program Reports (available at: <http://globalchange.mit.edu/pubs/reports.php>)

173. Paltsev, S., J.M. Reilly, H.D. Jacoby and J.F. Morris: *The Cost of Climate Policy in the United States*, 2009, April, 24 p.

172. Karplus, V.J., S. Paltsev and J.M. Reilly: *Prospects for Plug-in Hybrid Electric Vehicles in the United States and Japan: A General Equilibrium Analysis*, 2009, April, 32 p.

169. Sokolov, A.P., P.H. Stone, C.E. Forest, R.G. Prinn, M.C. Sarofim, M. Webster, S. Paltsev, C.A. Schlosser, D.Kicklighter, S. Dutkiewicz, J. Reilly, C. Wang, B. Felzer, H.D. Jacoby: *Probabilistic Forecast for 21st Century Climate Based on Uncertainties in Emissions (without Policy) and Climate Parameters*, 2009, January, 44 p.

168. Melillo, J.M., A.C. Gurgel, D.W. Kicklighter, J.M. Reilly, T.W. Cronin, B.S. Felzer, S. Paltsev, C.A. Schlosser, A.P. Sokolov and X. Wang: *Unintended Environmental Consequences of a Global Biofuels Program*, 2009, January, 28 p.

167. Jacoby, H.D., M.H. Babiker, S. Paltsev and J.M. Reilly: *Sharing the Burden of GHG Reductions*, 2008, November, 28 p.

165. Webster, M., S. Paltsev, J. Parsons, J. Reilly and H. Jacoby: *Uncertainty in Greenhouse Emissions and Costs of Atmospheric Stabilization*, 2008, November, 81 p.

164. Morris, J., S. Paltsev and J. Reilly: *Marginal Abatement Costs and Marginal Welfare Costs for Greenhouse Gas Emissions Reductions: Results from the EPPA Model*, 2008, November, 45 p.

163. Prinn, R., S. Paltsev, A. Sokolov, M. Sarofim, J. Reilly and H. Jacoby: *The Influence on Climate Change of Differing Scenarios for Future Development Analyzed Using the MIT Integrated Global System Model*, 2008, September, 28 p.

161. Babiker, M., A. Gurgel, S. Paltsev and J. Reilly: *A Forward Looking Version of the MIT Emissions Prediction and Policy Analysis (EPPA) Model*, 2008, May, 18 p.

160. Metcalf, G.E., S. Paltsev, J.M. Reilly, H.D. Jacoby and J. Holak: *Analysis of U.S. Greenhouse Gas Tax Proposals*, 2008, April, 59 p.

158. McFarland, J.R., S. Paltsev and H.D. Jacoby: *Analysis of the Coal Sector Under Carbon Constraints*, 2008, April, 35 p.

155. Gurgel, A., J. Reilly and S. Paltsev: *Potential Land Use Implications of a Global Biofuels Industry*, 2008, March, 40 p.

154. Sandoval, R., V.J. Karplus, S. Paltsev and J. Reilly: *Modeling the Prospects for Hydrogen Powered Transportation Through 2100*, 2008, February, 22 p.

Student thesis:

Karplus, V.: *Prospects for Plug-In Hybrid Transportation in the United States: A General Equilibrium Analysis*, Master of Science Thesis, Technology and Policy Program and Dept. of Civil and Environmental Engineering, MIT, 2008, June.

Wang, X.: *Impacts of Greenhouse Gas Mitigation Policies on Agricultural Land*, Ph.D. Thesis, Dept. of Urban Studies and Planning, MIT, 2008, February

Anderson, J.D.: *CO2 Mitigation Costs for Canada and the Alberta Oil Sands*, Master of Science Thesis, Dept. of Aeronautics and Astronautics, MIT, 2008, January.