

**MIT Joint Program on the Science and Policy of Global Change
Massachusetts Institute of Technology, Cambridge, USA**

<http://globalchange.mit.edu>

GTAP-related activities, 2013

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 was used for variety of applications.

The MIT Joint Program has also helped GTAP to develop a proposal to disaggregate electricity in the GTAP database. The relevance of electricity generation technologies is becoming increasingly important in a variety of research applications. The current treatment in the GTAP database as an aggregate sector is proving to be insufficient. This greatly limits the ability to conduct adequate policy analysis concerning many emerging global issues (e.g., energy consumption, greenhouse gas emissions). As a result of this, many GTAP contributors and users, perhaps even you or your organization, have pursued greater technological detail in the GTAP database independently. We are hoping that the GTAP board members would be able to contribute toward meeting the financial requirements to move this proposal forward.

**2013 AND 2014 PUBLICATIONS BY MIT JOINT PROGRAM USING GTAP (AS OF
MAY 2014)**

Kicklighter D., Y. Cai, Q. Zhuang, E. Parfenova, S. Paltsev, A. Sokolov, J. Melillo, J. Reilly, N. Tchepakova, and X. Lu, 2014, "Potential influence of climate-induced vegetation shifts on future land use and associated land carbon fluxes in Northern Eurasia," *Environmental Research Letters*, 9, 035004.

Paltsev, S., 2014, "Scenarios for Russia's Natural Gas Exports to 2050," *Energy Economics*, 42, 262-270.

Gurgel, A. and S. Paltsev, 2014, "Cost of reducing GHG emissions in Brazil," *Climate Policy*, 14(2), 209-223.

Valin, H., R. Sands, D. van der Mensbrugghe, G. Nelson, H. Ahammad, E. Blanc, B. Bodirsky, S. Fujimori, T. Hasegawa, P. Havlik, E. Heyhoe, P. Kyle, D. Mason-D'Croz, S. Paltsev, S. Rolinski, A. Tabeau, H. van Meijl, M. von Lampe, and D. Willenbockel,

2014, "The Future of Food Demand: Understanding Differences in Global Economic Models," *Agricultural Economics*, 45(1), 51-67.

Staples, M., H. Olcay, R. Malina, P. Trivedi, M. Pearlson, K. Strzepek, S. Paltsev, C. Wollersheim and S. Barrett, 2013, "Water consumption footprint and land requirements of large-scale alternative diesel and jet fuel production," *Environmental Science and Technology*, 47(21), 12557-12565.

Paltsev, S. and P. Capros, 2013, "Cost Concepts for Climate Change Mitigation," *Climate Change Economics*, 4, 1340003.

De Cian, E., I. Keppo, J. Bollen, S. Carrara, H. Förster, M. Hübler, A. Kanudia, S. Paltsev, R. Sands, and K. Schumacher, 2013, "European-led climate policy versus global mitigation action: Implications on trade, technology, and energy," *Climate Change Economics*, 4, 1340002.

Nam, K.-M., C. Waugh, S. Paltsev, J. Reilly, and V. Karplus, 2013, "Carbon co-benefits of tighter SO₂ and NO_x regulations in China," *Global Environmental Change*, 23(6), 1648-1661.

Reilly, J., S. Paltsev, K. Strzepek, N.E. Selin, Y. Cai, K.-M. Nam, E. Monier, S. Dutkiewicz, J. Scott, M. Webster, and A. Sokolov, 2013, "Valuing climate impacts in integrated assessment models: the MIT IGSM," *Climatic Change*, 117(3), 561-573.

Jacoby, H. and S. Paltsev, 2013, "Nuclear exit, the US energy mix, and carbon dioxide emissions," *Bulletin of the Atomic Scientists*, 69(2), 34-43.

Karplus, V., S. Paltsev, M. Babiker, and J. Reilly, 2013, "Should a vehicle fuel economy standard be combined with an economy-wide greenhouse gas emissions constraint? Implications for energy and climate policy in the United States," *Energy Economics*, 36, 322-333.

Karplus, V., S. Paltsev, M. Babiker, and J. Reilly, 2013, "Applying engineering and fleet detail to represent passenger vehicle transport in a computable general equilibrium model," *Economic Modelling*, 30, 295-305.

Winchester, N., C. Wollersheim, R. Clewlow, N. Jost, S. Paltsev, J. Reilly, and I. Waitz, 2013, "The Impact of Climate Policy on U.S. Aviation," *Journal of Transport Economics and Policy*, 47(1), 1-15.