

## GTAP-related Work in the World Bank: July 2009–June 2010

### GTAP and the Development Prospects Group

1. Most work involved climate change and the ENVISAGE model. The most significant modification over the last year has been that more economy-wide climate impacts have been added to the model. (Previously the model only had agricultural impacts.) We have been active participants in international fora for the modeling of climate change including the Asian Modeling Exercise (AME), the Energy Modeling Forum (EMF-24) and the Integrated Assessment Modeling Consortium (IAMC). Our policy work has focused on the economics of climate change impacts, carbon mitigation regimes and border tax adjustments. Below are some of the papers/reports published over the last year:

van der Mensbrugghe, Dominique (2010), "Climate, Trade and Development," Paper being presented at the Conference on "Climate Change, Trade and Competitiveness: Issues for the WTO," Geneva, 16-18 June, 2010.

van der Mensbrugghe, Dominique and Roberto Roson (2010), "Climate Change Policy Options for Asian Economies: Findings from an Integrated Assessment Model," Asian Economic Policy Review, 2010, pp. 63–83.

Roson, Roberto and Dominique van der Mensbrugghe (2010), "Climate Change and Economic Growth: Impacts and Interactions," Paper being presented at the 13th Annual Conference on Global Economic Analysis, GTAP, Penang, Malaysia, 9-11, June 2010.

Mattoo, Aaditya, Arvind Subramanian, Dominique van der Mensbrugghe and Jianwu He (2009), "Reconciling climate change and trade policy," World Bank Policy Research Working Paper, No. WPS 5123, November, The World Bank.

Mattoo, Aaditya, Arvind Subramanian, Dominique van der Mensbrugghe and Jianwu He (2009), "Can global de-carbonization inhibit developing country industrialization?" World Bank Policy Research Working Paper, No. WPS 5121, November, The World Bank.

Atkinson, Giles, Kirk Hamilton, Giovanni Ruta and Dominique van der Mensbrugghe (2009), "Trade in 'Virtual Carbon': Empirical Results and Implications for Policy," Background paper for World Development Report 2010: Development and Climate Change, The World Bank.

2. In collaboration with DECRG (Govinda Timilsina) there is a separate version of ENVISAGE that focuses on biofuels. That version of the model has corn broken out from coarse grains, separated refined oil into diesel, gasoline and other, included a biofuels sector that has different technologies and two-outputs (ethanol and biodiesel), and has a more detailed specification for land-use (including the full range of agro-ecological zones as made available by GTAP). The main results of this work were presented at a workshop held at the World Bank in March, 2010.

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3. There is ongoing work on international trade issues (with Will Martin/DECRG)—the most significant of which is the work on consistent aggregation.
4. We continue to work on international migration—mainly updating previous results. We provided a background paper for the last UN Development Report on migration and are currently updating the model and results to use release 7 of the GTAP dataset and the accompanying migration database.
5. There has been a lot of work on long-term scenarios—largely driven by the climate change work. But there is a lot of interest in long-term scenarios throughout the development and modeling community.
6. We have created some tools to make the GTAP database more accessible to DECPG analysts. One tool creates both a full SAM and macro SAM for any single region/country in the database. The other tool is linked to the bilateral trade database and allows for trend analysis of trade patterns—for single country/region or comparing two countries/regions. Future steps may include on the fly regional/sectoral aggregation of these two tools.
7. We have been working with a roster of consultants and would like to thank among others Jianwu He, Roberto Roson, Martina Sartori and Véronique Robichaud. Internally we are grateful for collaboration with Will Martin, Aaditya Mattoo, Govinda Timilsina, Simon Mevel, Kirk Hamilton, Giovanni Ruta, Denis Medvedev, Erick Fernandes, William Shaw and Richard Newfarmer. And of course would like to acknowledge the vigorous support of our director, Hans Timmer.

### GTAP Related Work in the Development Research Group

1. The following papers have been produced using the GTAP model/data and published/presented in the past year:
  - a. Analysis of energy issues in the Middle East, using a modified GTAP model and augmented GTAP data—Ivanic, Maros and Will Martin, 2010. *“Implications of Reforming Energy Use Policies in the Middle East and North Africa,”* unpublished manuscript.
  - b. Analysis of the implications of the growth of China and India on the Middle East—lanchovichina, Elena, Maros Ivanic, and Will Martin, 2009. *“Implications of the Growth of China and India for the Middle East,”* Middle East Development Journal 1(1):79-103.
  - c. Analysis of poverty issues of agricultural policies aimed at achieving food security—Ivanic, Maros and Will Martin, 2010, *“Promoting Global Agricultural Growth and Poverty Reduction,”* presented at *Fostering Growth and Reducing Poverty and Hunger in Asia and Latin America: Opportunities for Mutual Learning and Cooperation* organized by IFPRI on March 22, 2010, Lima, Peru

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- d. Analysis of projected growth on food demand and poverty; role of agricultural policy—  
Ivanic, Maros and Will Martin, “*Promoting Global Agricultural Growth and Poverty Reduction*,” presented at the 114th EAAE Seminar ‘Structural Change in Agriculture’, Berlin, Germany, April 15 - 16, 2010, also presented at the Australian Agricultural and Resource Economics Society (AARES) conference February 10-12, 2010, Adelaide, Australia
2. The GTAP data/parameters have been used in the following projects:
    - a. The calibration of the household’s demand and supply parameters in the poverty analysis module (including over 23 developing countries)
    - b. The analysis of the demand responses for Ukraine’s imports into the EU in the operational work on the Free trade agreement between the EU and Ukraine. The GTAP Armington elasticities were used to support this work.
  3. Maros Ivanic provided two three-hour GTAP overview courses to Bank staff. (May 2010 and December 2009). This training was organized by PREM and it attracted about 10 people to each course.

### Europe and Central Asia Region

Souleymane Coulibaly is planning a chapter on rural development in Armenia that would use the GTAP model/data to estimate the growth impact of policy measures to improve agricultural productivity, irrigation systems and rural roads.

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