



# **The Global Trade Analysis Project: Report, Issues and Future Directions**

**Background Paper for the GTAP Advisory Board Meeting  
Melbourne, Australia  
June 15-16, 2015**

**By:**

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**Center for Global Trade Analysis  
Purdue University**

# Table of Contents

<b>Executive Summary</b> .....	<b>3</b>
<b>GTAP Advisory Board Representatives and Other Meeting Attendees</b> .....	<b>5</b>
<b>GTAP Advisory Board Meeting Agenda</b> .....	<b>7</b>
<b>Mission and Goals</b> .....	<b>11</b>
<b>Center Staff, Research Associates, Graduate Students and Visitors</b> .....	<b>12</b>
<b>Objectives and Accomplishments</b> .....	<b>15</b>
Progress towards Goals over the Past Year.....	15
Proposed Activities over the Next Year and Beyond.....	23
<b>The GTAP Data Base and Other Data Projects: Progress and Future Objectives</b> .....	<b>27</b>
GTAP 9 Release.....	27
Issues for the Near Future .....	27
Issues for the Long Term .....	28
<b>Research and Model Development: Progress and Future Objectives</b> .....	<b>30</b>
<b>Education and Network</b> .....	<b>37</b>
Additions to the GTAP Paper Series .....	37
Courses .....	37
Conferences.....	37
Research Fellows.....	38
GTAP Network, Website and Usage Reports .....	38
<b>Center Finances and Staffing</b> .....	<b>39</b>
Finances.....	39
Staffing.....	39

June 9, 2015

Dear GTAP Advisory Board Members,

Much has happened over the past 12 months here at the Center—both in terms of our products and services as well as staffing. After some significant teething pains, we look forward to the release of the GTAP 9 Data Base. Compared to the initial release of GTAP 8, the latest release now includes snapshots of the global economy for three years—2004, 2007 and 2011—and has an additional 11 economies (all of which were available to the board with GTAP 8.2). In addition to the standard satellite accounts, we now plan to make available the land use and non-CO2 emission database as part of the regular release and at no cost. Finally, thanks to the leadership of several board agencies, we have made significant progress in developing a new database for electricity generation—a desirable component for those working in the area of energy, emissions and climate change. We hope to make this part of the regular release in the near future.

Our educational programs have seen record attendance. Last summer’s short course had 36 participants and GTAP 101, our online introduction to CGE modeling led by Mary Burfisher, has seen rising enrollment and rave reviews. Registration for this year’s forthcoming course on Dynamic GTAP has also been robust. With the success of these programs, we are also pondering developing additional courses with a narrower focus, for example a policy-oriented module on the modeling of regional trade agreements, and a theory-oriented module on the incorporation of heterogeneous firm theory into GTAP-based models.

We anticipate that staffing at the Center will be relatively stable from this summer forward. Erwin Corong, a recent PhD from the Centre of Policy Studies, is the most recent addition to our staff, coming from the New Zealand Institute of Economic Research. Erwin will join the data team and one of his initial tasks will be to work on integrating domestic trade, transport, wholesale and retail margins into the GTAP Data Base and modeling framework. On the other hand, we are extremely sad to be losing Nelson Villoria who is taking a tenure-track faculty position at Kansas State University. Beyond his valuable research achievements, Nelson has become a pillar in the teaching of the GTAP Short Course. We are fortunate that our Purdue colleague, and long-time short course instructor, Roman Keeney, has accepted to take the lead role in the short course. The Center is also proud to announce our four freshly-minted PhDs—Uris Baldos, Burcu Irfanoglu, Zekarias Hussein and Jing Liu.

Allow me to take this opportunity to express my gratitude for the support and encouragement that the board has given me since the announcement of my appointment. I have been delighted by the work environment here at the Center and Purdue University more broadly. We all benefit from the collegiality and openness that has been the hallmark of the GTAP Network since its inception, largely thanks to Tom’s vision and persistence. I look forward to working closely with you in the coming year and hope to be able to share a similarly positive report in 2016!

Sincerely,



Dominique van der Mensbrugghe, Ph.D.  
Research Professor and Director of GTAP  
Center for Global Trade Analysis  
Department of Agricultural Economics  
Purdue University

# Executive Summary

The list below highlights a number of important accomplishments in the Center during the past year. Detailed discussion follows in the subsequent report.

## Data Base and Models

- Non-CO<sub>2</sub> Emissions datasets for version 8 and 9
- GTAP 8.2 Data Base
- GTAP 9 Data Base

## Network

- Two offerings of GTAP 101
- 2014 Conference and Board Meeting held in Dakar
- 22<sup>nd</sup> Annual Short Course held in West Lafayette
- 2015 (Melbourne) and 2016 (Washington DC) Conferences on track
- 2017 Conference proposal (20<sup>th</sup> Annual, West Lafayette) submitted for consideration
- 2018 Conference – contacts made with potential host institutions; soliciting input from Board

## Research Projects

- Strong external funding for selective research activities in the Center aimed at advancing the frontiers of GTAP-related data, modeling and policy analysis
- More than three-dozen peer-reviewed articles
- Further development and application of the GTAP-BIO-W model (Taheripour, Narayanan, Hertel)
- Initiation of a major project on long run global land use and forestry (Hertel, Golub, Brent Sohngen and others)
- MRIO - Terrie Walmsley and Tom Hertel worked with David Hummels to develop a GTAP-based MRIO for an ADB funded project on supply chains in Asia. For this project, three alternative GTAP-based MRIOs were developed and analytically compared. Further, a new model, GTAP-SC, was developed to incorporate the additional dimensions of an MRIO. This was used to assess the supply chain impacts of localized disasters. Currently, Caitlyn Carrico is finalizing an official GTAP MRIO available for GTAP Data Base versions 8 and 9. A Technical Paper detailing the methodology as well as providing an application within the GTAP-SC framework is underway. The GTAP MRIO is currently intended to be released to the public as a Satellite Data Base.
- Public Procurement - The objective of this project is to improve the government representation in a general equilibrium model and underlying data base of the world economy. This is a European Commission funded project in which we extend the GTAP framework to consider public investment, as well as the origin of imports; and we also modified the model to consider different government procurement regimes.
- AKME - Successful implementation of firm heterogeneity into the standard GTAP model. The manuscript was submitted for review for the GTAP Technical Paper Series in October 2014 and received good reviews. The manuscript is currently being revised and will be re-submitted in summer. The firm heterogeneity module will be one of the applications in the 23<sup>rd</sup> Annual Short Course in Global Trade Analysis in July 2015. A new project funded by USDA-ERS has been initiated in January 2015. The project involves a broader trade policy analysis by using the newly

developed firm heterogeneity module of GTAP. This is an ongoing project expected to be completed by summer 2015. If co-financing becomes available, we are planning to work on a new project that involves a larger scale parameterization of the firm heterogeneity module.

- Electric Power Database - The first iteration of the electric power database along with the accompanying documentation distributed to grant contributors.

### **Staffing**

- New Research Economist hired: Erwin Corong

# GTAP Advisory Board Representatives<sup>1</sup> and Other Meeting Attendees

## GTAP Consortium Agency Representatives

- **Agricultural Economics Research Institute** (The Hague, The Netherlands)  
Hans van Meijl - [hans.vanmeijl@wur.nl](mailto:hans.vanmeijl@wur.nl) (absent)  
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- **Centre d'Etudes Prospectives et d'Information Internationales** (Paris, France)  
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<sup>1</sup> Agency reports available at: [http://www.gtap.agecon.purdue.edu/events/Board\\_Meetings/2015/](http://www.gtap.agecon.purdue.edu/events/Board_Meetings/2015/)

- **Productivity Commission** (Melbourne, Australia)  
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- **Thünen Institute of Market Analysis** (Braunschweig, Germany)  
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- **United Nations Conference on Trade and Development** (Geneva, Switzerland)  
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- **World Trade Organization** (Geneva, Switzerland)  
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Bob Koopman - [robert.koopman@wto.org](mailto:robert.koopman@wto.org)

#### Member at Large

- **Mark Horridge** - [mark.horridge@gmail.com](mailto:mark.horridge@gmail.com)  
Centre of Policy Studies, Victoria University

#### Guests of the Board

- **Philip Adams** - [philip.adams@vu.edu.au](mailto:philip.adams@vu.edu.au)  
Centre of Policy Studies, Victoria University
- **Glyn Wittwer** - [glyn.wittwer@vu.edu.au](mailto:glyn.wittwer@vu.edu.au)  
Centre of Policy Studies, Victoria University

# GTAP Advisory Board Meeting Agenda

## Meeting Location:

Productivity Commission (Rattigan Room), Level 12, 530 Collins Street, Melbourne VIC 3000 Australia

Monday, June 15	
<b>8:30-9:00am</b>	<b>Welcome Coffee</b>
<b>9:00-10:30am</b>	<p><b>Welcome and Overview</b> Chair: Bob Koopman</p> <p>9:00-9:30      <b>Overview and Issues</b>    Dominique van der Mensbrugge</p> <p>9:30-10:00      Discussion</p> <p>10:00-10:20    <b>The GTAP Data Base: Progress and Future Directions</b>    Badri Narayanan</p> <p>10:20-10:30      Discussion</p>
<b>10:30-11:00am</b>	<b>Coffee Break</b>
<b>11:00am-12:20pm</b>	<p><b>The GTAP Data Base: Updates on Core Components</b> Chair: Anders Aeroe</p> <p>11:00-11:10    <b>I-O Tables</b>    Angel Aguiar</p> <p>11:10-11:20      Discussion</p> <p>11:20-11:30    <b>Domestic Support for the EU</b>    Hans Grinsted Jensen</p> <p>11:30-11:40      Discussion</p> <p>11:40-11:50    <b>Energy Data Base</b>    Robert McDougall</p> <p>11:50-12:00      Discussion</p> <p>12:00-12:10    <b>Services Trade Dataset</b>    Robert McDougall</p> <p>12:10-12:20      Discussion</p>
<b>12:20-1:45pm</b>	<b>Lunch</b>
<b>1:45-2:45pm</b>	<p><b>The Network</b> Chair: Patrick Jomini</p> <p>1:45-1:50      <b>2015 Conference Report</b>    Philip Adams and Glyn Wittwer</p> <p>1:50-2:00      Discussion</p> <p>2:00-2:05      <b>2016 Conference Report</b>    Maryla Maliszewska</p> <p>2:05-2:15      Discussion</p>

Monday, June 15	
	<p>2:15-2:20      <b>2017 Conference Proposal</b> Ginger Batta</p> <p>2:20-2:30      Discussion</p> <p>2:30-2:35      <b>2015-2018 GTAP Research Fellow Nominations</b> Lucian Cernat</p> <p>2:35-2:45      Discussion: Voting, Future Committee Selection</p>
<b>2:45-3:15pm</b>	<b>Coffee Break</b>
<b>3:15-4:15pm</b>	<p><b>New Developments at the Interface of Data and Modeling</b> Chair: Lucian Cernat</p> <p>3:15-3:20      <b>GTAPAgg2</b> Badri Narayanan and Mark Horridge</p> <p>3:20-3:30      Discussion</p> <p>3:30-3:35      <b>Roadmap for Incorporating Domestic Margins</b> Erwin Corong</p> <p>3:35-3:45      Discussion</p> <p>3:45-3:50      <b>The Standard GTAP Model in GAMS</b> Dominique van der Mensbrugge</p> <p>3:50-4:00      Discussion</p> <p>4:00-4:05      <b>Mainstreaming Non-CO<sub>2</sub> Emissions Factors</b> Dominique van der Mensbrugge</p> <p>4:05-4:15      Discussion</p>
<b>4:15-5:30pm</b>	<b>Other Data and Modeling Issues (Parking Lot)</b> Chair: Sergey Paltsev
<b>7:00pm</b>	<p><b>Dinner</b></p> <p><b>Saint &amp; Rogue</b> 582-584 Little Collins Street, Melbourne, VIC 3000 Ph: 03 9620 9720   <a href="http://www.saintandrogue.com.au">www.saintandrogue.com.au</a></p> <p>Meet in Clarion Suites Gateway lobby at 6:40pm. The Center will cover the bill. <i>*See map following the agenda for further details.</i></p>

Tuesday, June 16	
<b>8:30-9:00am</b>	<b>Welcome Coffee</b>
<b>9:00-10:00am</b>	<p><b>New Developments at the Interface of Data and Modeling</b> Chair: Martina Brockmeier</p> <p>9:00-9:05      <b>Public Procurement</b> Angel Aguiar</p> <p>9:05-9:15      Discussion</p>

Tuesday, June 16	
	<p>9:15-9:20     <b>GTAP-Power</b>                   Jeffrey Peters</p> <p>9:20-9:30     Discussion</p> <p>9:30-9:35     <b>SSP Database</b>                   Dominique van der Mensbrugge</p> <p>9:35-9:45     Discussion</p> <p>9:45-9:50     <b>International Margins</b>                   Robert McDougall</p> <p>9:50-10:00    Discussion</p>
<b>10:00-10:30am</b>	<b>Coffee Break</b>
<b>10:30-11:30am</b>	<p><b>Education, Outreach and Strategic Communication</b> Chair: Stephen Karingi</p> <p>10:30-10:45   <b>Education Plan</b>                   Dominique van der Mensbrugge</p> <p>10:45-11:00   Discussion</p> <p>11:00-11:15   <b>Strategic Workshop: Outreach, Journal</b>                   Thomas Hertel</p> <p>11:15-11:30   Discussion</p>
<b>11:30am-1:00pm</b>	<p><b>Priorities for Forthcoming Year</b> Chair: Kenichi Kawasaki</p> <p>11:30-11:50   <b>Budget and Staffing</b>                   Dominique van der Mensbrugge</p> <p>11:50-12:10   Discussion</p> <p>12:10-12:30   <b>Revisit Priorities for Next Year</b>                   Dominique van der Mensbrugge</p> <p>12:30-1:00    Discussion</p>
<b>1:00-2:00pm</b>	<b>Lunch</b>
<b>2:00-3:30pm</b>	<p><b>Additional Meetings (Rattigan Room)</b></p> <p>2:00-2:30     Water (Thomas Hertel)</p> <p>2:30-3:00     Power (Jeffrey Peters)</p> <p>3:00-3:30     EU GTAP Project (Jose Manuel Rueda-Cantuche)</p>
<b>4:00-6:00pm</b>	<p><b>Pre-Conference Seminars</b></p> <p><b>Victoria University Convention Centre</b>, Level 12, 300 Flinders St, Melbourne *See map following the agenda for further details.</p> <p><b>4:00–5:00 GEOSHARE</b> <i>The mission of GEOSHARE (Geospatial Data Hosting for Discovery and Decision Making) is to develop and maintain a freely available, global, spatially explicit database on agriculture, land use, and the environment</i></p>

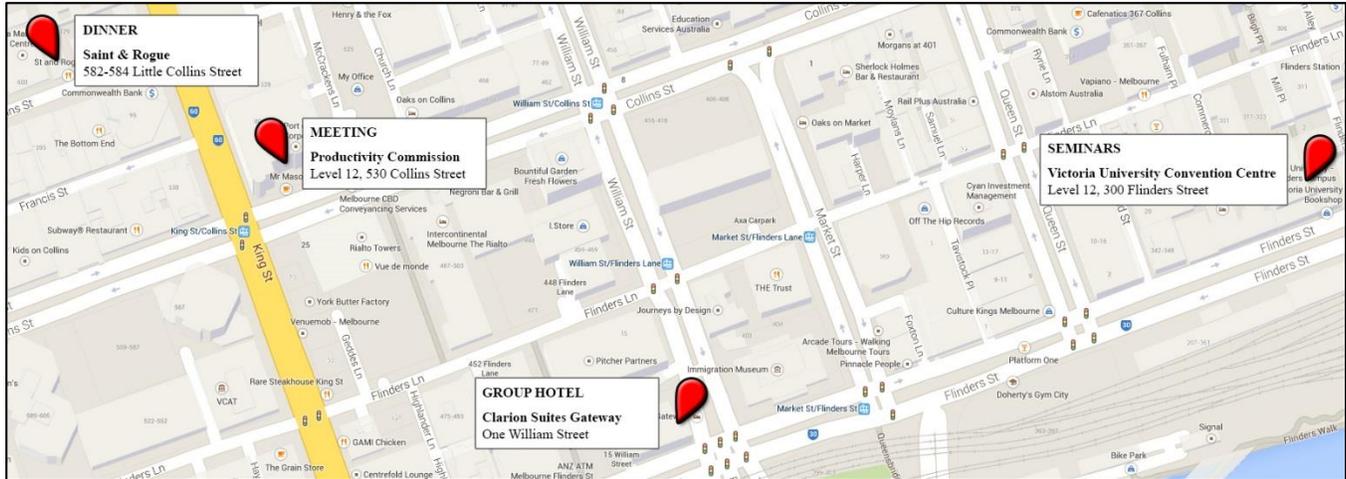
Tuesday, June 16

*accompanied by analysis tools and training programs for new scientists, decision makers, and development practitioners. Join Thomas Hertel to learn more on this database and initiative.*

**5:00-6:00 GTAP 9 Data Base**

*Join the GTAP data team, Badri Narayanan, Robert McDougall and Angel Aguiar, to learn more about the GTAP 9 release.*

**Melbourne Map**



# Mission and Goals

## *Our Mission*

To provide leadership in economic policy analysis by fostering collaboration to achieve better data and research outcomes.

## *We value:*

- International collaboration because it increases quality of data and analysis.
- Objectivity and transparency because they are crucial to our data work and analysis.
- Discovery because improving methodology leads to better policy analysis.
- Learning because it creates critical vibrancy both within the Center and in the expanding network and improves the quality of analysis undertaken.
- Engagement because it helps us serve policy analysts and decision makers with better data and analysis.

## *We believe that:*

- Better data leads to better policy analysis which leads to better policy.
- Reconciling data makes data better.
- CGE modeling provides useful policy insights.
- Avoiding duplication in data production is efficient.
- Collaboration enhances individual efforts.
- Having more trained users enriches policy debates.

## *Goals:*

1. **Data Goal:** To Improve the quality of data products through:
  - a. Improving the quality of contributed I-O data
  - b. Addition and improvement of other datasets
  - c. Monitoring of data quality using comparison programs
  - d. Version control and documentation
2. **Research Goal:** To actively participate in quantitative economic analysis of pressing global concern in the areas of Trade and Development and Global Environmental Issues
3. **Model Goal:** To promote further development of GTAP-based models
4. **Education Goal:** To expand and improve education for global economic analysis worldwide
5. **Staffing Goal:** To actively seek and encourage talented staff and graduate students
6. **Collaboration Goal:** To actively seek opportunities for fostering collaboration with institutions around the world
7. **Communication Goal:** To facilitate communication amongst members of the network as well as between the Center and key stakeholders

## Center Staff, Research Associates, Graduate Students and Visitors

### *Center Staff*

- ***Angel Aguiar, Research Economist and Data Base Construction Specialist***  
Angel works with the macro datasets and contributors of the regional I-O data for the GTAP Data Base. He collaborates on special data modules to improve the GTAP Data Base and satellite data sets such as GDYN and GMig2. Angel also teaches in GTAP Short Courses and leads the bi-annual GTAP Dynamic Course. He undertakes economic research using the GTAP framework.
- ***Ginger Batta, Senior Program Manager***  
Ginger manages the proposal phase, logistics, budgets, participant relations, execution and reporting for all events including the GTAP conferences, advisory board meetings, short courses, dynamic short courses and GTAP 101 courses. She also manages the sales, distribution, licensing and reporting for all GTAP products as well as general communication with the GTAP Network.
- ***Mary Burfisher, Senior Education Advisor***  
Mary leads the GTAP 101 Course as well as advising the Center on education-related items.
- ***Erwin Corong, Research Economist***  
Erwin recently joined the Center as a Research Economist. His main initial tasks will be to work on integrating domestic trade, transport, wholesale and retail margins into the GTAP Data Base and modeling framework.
- ***Jeremy Douglas, Web and Information Technology Specialist***  
Jeremy is responsible for the design, development, and maintenance of the GTAP website.
- ***Alla Golub, Research Economist***  
Alla is Research Economist at the Center working on analysis of energy and climate change mitigation policies. Alla writes competitive grant proposals and serves as principal and co-principal investigator on several projects. Alla also teaches in GTAP Short Courses.
- ***Thomas Hertel, Executive Director and Distinguished Professor***  
Thomas focuses on strategic issues and new research directions for the Center, as well as Consortium member development. He also supervises graduate students and is heavily involved in a number of environment-related projects at the Center.
- ***Wendy Kincaid, Operations Coordinator***  
Wendy assists the Center staff with the research account process from proposal to reconciliation and closing. She also manages Center finances and Consortium billing, formats the GTAP Data Base Documentation, and coordinates the technical and working paper series. She works closely with the Director on all University-related processes.
- ***Robert McDougall, Senior Research Economist***  
Robert works on special projects which significantly improve the GTAP Data Base and Models. This year he has been working on energy, services trade, and tax data and the development of programs to compare databases and ensure data base quality.
- ***Badri Narayanan, Data Base Manager and Research Economist***  
Badri is in charge of the management and construction of GTAP Data Base releases and documentation. This year, Badri has been working on construction of the GTAP 9 Data Base. Badri is also conducting research on a range of issues, including child labor, tariff policies, FTAs, energy issues and domestic support. He teaches in the GTAP Short Courses as well.

- ***Krishnamurthy Sriramesh, Senior Advisor for Strategic Communications***  
Sriramesh advises the Center on communications and outreach strategy.
- ***Wallace Tyner, Senior Policy Advisor and Professor***  
Wally advises the Center on policy. Most recently he has been spearheading a number of large research projects and proposals in the areas of energy, climate change, and biofuels.
- ***Dominique van der Mensbrugghe, Director and Research Professor***  
Dominique oversees the day-to-day activities of the Center, as well as focusing on new initiatives in development of the GTAP Data Base and models and policy applications. He also supervises graduate students, in the context of his ongoing research on trade, development and the environment.
- ***Nelson Villoria, Research Assistant Professor and Associate Director for Educational Outreach and Strategy***  
Nelson is part of the Center's management committee, leads the annual GTAP Short Course, advises graduate students, maintains the GTAP-AEZ modeling and database framework, and conducts research on improving bilateral transport margins in the GTAP Data Base as well as including heterogeneous firms in the GTAP framework. His research interests are on global land use and agricultural international trade. Nelson will be departing the Center in August 2015 for a position at Kansas State University.

#### ***Purdue University Research Associates***

- ***Uris Baldos, Post-doctoral Research Associate***  
Uris is a post-doctoral researcher in the Center for Global Trade Analysis. He is in charge of updating the GTAP Land Cover and Land Use database. His current research interests focus on the global farm-food-environment nexus and on economic modelling. Uris is the co-developer of SIMPLE: a Simplified International Model of agricultural Prices, Land use and the Environment.
- ***Jing Liu, Post-doctoral Research Associate***  
Jing Liu is a postdoctoral scholar at the center of Global Trade Analysis Project. Jing contributed to incorporating water into the GTAP-BIO-W database and model. She is currently developing a set of fine-resolution estimation of land use conversion at the global scale. The expected output will be used to update the elasticity of effective land supply in the GTAP Data Base.
- ***Roman Keeney, Faculty Research Associate***  
Roman is an Associate Professor with the Department of Agricultural Economics and Research Associate of the Center. He works on agricultural issues such as land use and biofuels, teaches in the GTAP Short Course and will take over leadership of the short course in 2016.
- ***Farzad Taheripour, Faculty Research Associate***  
Farzad is a Research Associate Professor with the Department of Agricultural Economics and Research Associate of the Center. He has developed data and models to introduce bio-fuels into the GTAP framework and link the GTAP Model with water and energy models. He also has accomplished a major revision of the natural gas sector in the GTAP Data Base. He works on emissions due to land use changes associated with the production of first and second generations of bio-fuels.

### *Graduate Students<sup>2</sup>*

- ***Zeynep Akgul (Turkey)***  
Zeynep Akgul is a Ph.D. candidate in the Department of Agricultural Economics and will be entering the job market in May 2015. She has worked on macroeconomic mechanisms and alternative closures in the GTAP Model. She is currently working on the implementation of firm heterogeneity into the GTAP Model. She is also working on a related USDA-ERS-funded project which involves a broader policy analysis by using the newly developed firm heterogeneity module of GTAP. Zeynep holds a BS (2007) and an MS (2009) in Economics from the Middle East Technical University in Turkey.
- ***Caitlyn Carrico (USA)***  
Caitlyn Carrico is a Ph.D. candidate in the Department of Agricultural Economics. She has worked on expanding labor statistics from two skill types to five occupational types within GTAP Data Base versions 8.1L and 9. She has also worked on the USITC-funded project that disaggregated U.S. households using the MyGTAP framework. Most recently, she has been developing a GTAP-based MRIO as part of a project on public procurement for the European Commission. She is also writing a GTAP Technical Paper to document the GTAP MRIO.
- ***Iman Haqiqi (Iran)***  
Iman is a PhD student in the Department of Agricultural Economics. He works on agricultural producer support estimates and agricultural production targeting for GTAP 9 Data Base. Iman is also involved in OECD ENV-Linkages Model. He develops necessary data files, helps with model simulations, and tests the model results. He focuses on the incorporation of water module in the GAMS version of the model.
- ***Jose Nuño-Ledesma (Mexico)***  
Jose is a PhD student in the Department of Agricultural Economics. Prior to joining Purdue, he worked at the Central Bank of Mexico as a regional economist. His research interests include international trade, price analysis, food policy and development economics. Jose received his undergraduate degree in economics at the Universidad de Guadalajara in Mexico and his Master of Science degree in applied economics from the University of Minnesota-Twin Cities.
- ***Jeffrey C. Peters (USA)***  
Jeffrey is a PhD candidate in the Department of Agricultural Economics and will be entering the job market in December 2015. He is redesigning the GTAP electric power sector thanks to the contribution of several board members. This led to an interest in some key aspects of the database-modeling nexus in CGE/IAM. His research interests revolve around electricity technologies given the sector's prominent role in global issues such as climate change, fuel trade, and energy security.

### *Visitors to the Center*

- Dr. Joseph Francois, World Trade Institute
- Mr. Jean Balié, Food and Agriculture Organization of the United Nations
- Dr. Ken Itakura, Nagoya City University
- Mr. Kazuhiko Oyamada, Institute of Developing Economies, Japan External Trade Organization
- Dr. Douglas Irwin, Dartmouth College
- Dr. Ximin Cai, University of Illinois
- Dr. Megan Konar, University of Illinois

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<sup>2</sup> See supplementary materials ([www.gtap.agecon.purdue.edu/events/Board\\_Meetings/2015/supp\\_material.asp](http://www.gtap.agecon.purdue.edu/events/Board_Meetings/2015/supp_material.asp)) for CVs.

# Objectives and Accomplishments

## Progress towards Goals over the Past Year

Below is an assessment of our progress towards the core objectives outlined last year in the Board Meeting summary:

### 1. Data Goal: To Improve the quality of data products

Tasks	Responsibility
<b>Improving the quality of contributed I-O data (core)</b>	<b>Aguiar</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Develop programs that would facilitate the contribution of Supply and Use tables and alternative formats more consistent with those coming out of statistical offices</li> </ul>	Grad
<i>Programs are completed, documentation is pending.</i>	
<ul style="list-style-type: none"> <li>Work with contributors to improve the EU IO Tables</li> </ul>	Grad
<i>The contributor is planning to deliver the data by December 2015.</i>	
<ul style="list-style-type: none"> <li>Work more closely with National Statistical Offices (NSOs) and OECD</li> </ul>	Grad
<i>We continue to contact the National Statistical Offices directly.</i>	
<i>Secondary Priorities</i>	
<ul style="list-style-type: none"> <li>Further examination on whether the treatment of the dwellings sector can be improved</li> </ul>	McDougall
<i>Module is finalized; we will gather supplementary information and plan to incorporate this in a future release.</i>	
<b>Addition/Improvement of Datasets used in GTAP Data Base (core)</b>	<b>Narayanan</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Investigate possibilities for services sector disaggregation for v10</li> </ul>	Aguiar, McDougall
<i>Work has commenced, data at hand for developed countries only. To be done after v9 release.</i>	
<ul style="list-style-type: none"> <li>Collaborate with ITC on further splitting tariff dataset and other developments on tariff dataset</li> </ul>	Pichot, Mimouni
<i>This work is ongoing; BN is working with the ITC team on various aspects of the tariff dataset, such as preference utilization, compound tariffs and making available annual tariff dataset compatible with GTAP.</i>	
<i>Secondary Priorities</i>	
<ul style="list-style-type: none"> <li>Examine possibility of targeting trade balances</li> </ul>	McDougall
<i>Possibility confirmed and to be examined in the version 10 data cycle</i>	
<ul style="list-style-type: none"> <li>Examine the availability of NSO data (production, etc., by year) to update IO tables as part of FIT process (when redo FIT)</li> </ul>	Aguiar
<i>No progress has been made here. This is a long-term goal which will be implemented gradually over several versions.</i>	
<ul style="list-style-type: none"> <li>Domestic Margins</li> </ul>	McDougall, Aguiar, Ludena
<i>This will be taken over by Erwin Corong.</i>	

<ul style="list-style-type: none"> <li>Domestic support, PSE database for Latin America and Africa – MAFAP</li> </ul>	Van Tongeren
<p><i>OECD's dataset is still work in progress. They have expanded coverage of non-OECD countries and we have incorporated them. BN is collaborating with MAFAP team (Jean Balié) on a paper for the conference, wherein he is incorporating MAFAP dataset in GTAP. This will help us test a pilot version of the dataset.</i></p>	
<ul style="list-style-type: none"> <li>Baseline/forecast tool for updates</li> </ul>	Resource dependent
<p><i>No progress was made on this, since we did not have resources.</i></p>	
<b>Addition/Improvement of Protection Data (core)</b>	<b>Narayanan</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Update TASTE to v9</li> </ul>	Pelikan, Laborde, Horridge
<p><i>Done and released to the Board. David Vanzetti has provided some feedback and Janine Pelikan is looking into it.</i></p>	
<b>Version Control and Documentation</b>	<b>Narayanan</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Begin to implement pre-release process for version 9</li> </ul>	McDougall, Aguiar
<p><i>New system partly implemented.</i></p>	
<b>Monitoring Data Quality using Comparison Programs (core)</b>	<b>Narayanan</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Undertake more pre- and post-data Comparisons</li> </ul>	Aguiar, McDougall
<p><i>This is ongoing work. We undertake these comparisons during every release and circulate them to the Board. Comparisons and checks added for energy and services trade data.</i></p>	
<b>Communication (core)</b>	<b>Narayanan</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Add a number of FAQs to the website to address questions like: Is GTAP SNA compatible?</li> </ul>	Aguiar
<p><i>This is ongoing work. We keep adding to the FAQs based on the responses we provide to the questions that come up on gtap-support and gtap-l.</i></p>	
<ul style="list-style-type: none"> <li>FAQ for website: where does my money go?</li> </ul>	Kincaid
<p><i>A visual overview of the Center's finances has been posted at: <a href="https://www.gtap.agecon.purdue.edu/about/center.asp">https://www.gtap.agecon.purdue.edu/about/center.asp</a> and will be updated periodically.</i></p>	
<b>Satellite Data</b>	<b>Narayanan</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Release satellite datasets (GDyn, GMig2, land use, GTAP-E, non-CO2 emissions) soon after the public release of version 9</li> </ul>	Aguiar, Golub, McDougall, Villoria, Irfanoglu, Baldos
<p><i>GDyn, GMig2, Land Use, GTAP-E</i>  <i>This is ongoing work. We expect most of them to be released before the 2015 conference.</i></p> <p><i>Non-CO2 Emissions</i>  <i>A first version of the non-CO2 emissions database has been constructed compatible with the candidate release of GTAP 9. It has been constructed using similar methodology as in the first version, mapping the primary data sources to GTAP activities. The source data includes the FAO's greenhouse gas emissions database for agricultural activities, and the Netherlands-based EDGAR database for other activities. The EDGAR database is only complete through</i></p>	

<i>2010 and extrapolation methods have been used to provide estimated emissions for 2011. The database is currently being vetted by a number of interested users.</i>	
<b>Publish more on the GTAP Data Base Construction Process</b>	<b>Various</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Papers on data base construction process, including specific examples of why GTAP data do not match source data</li> </ul>	Aguiar, McDougall, Narayanan
<i>Ongoing, partly addressed in one of the papers mentioned below in this report.</i>	
<ul style="list-style-type: none"> <li>Paper/chapter outlining how much I-O tables have changed - ranking of countries. Which changed the most and which the least and why?</li> </ul>	Narayanan
<i>Paper to be presented at conference: "Reconciling the GTAP Data Base: Where are the Big Changes?"</i>	
<b>Miscellaneous</b>	<b>Various</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>New international margins</li> </ul>	Villoria
<i>Nelson Villoria and PhD student Jose Nuño have collected all the data necessary for this work and have commenced estimation. We expect a first draft and dataset by late June 2015 for the GTAP 9.1 Data Base.</i>	
<ul style="list-style-type: none"> <li>SSP Database</li> </ul>	van der Mensbrugge
<i>To assist in developing dynamic baselines and those working on scenarios developed in the context of the Intergovernmental Panel on Climate Change (IPCC), the Center is making available to the GTAP community the basic elements of the so-called Shared Socio-economic Pathways (SSPs). [See also <a href="https://secure.iiasa.ac.at/web-apps/ene/SspDb/dsd?Action=htmlpage&amp;page=about">https://secure.iiasa.ac.at/web-apps/ene/SspDb/dsd?Action=htmlpage&amp;page=about</a>.] There are five core SSPs that reflect different storylines about demographics, income growth and rates of urbanization. The database contains GDP and demographic profiles for the 5 SSPs from 2007 through 2100. The 2007 through 2010 data reflect growth as sourced from the WDI database of the World Bank. The demographic projections were developed at IIASA and include details on gender, 5-year age cohorts and educational attainment levels. We are releasing only a subset that has 3 age cohorts (less than 15, working age, i.e. 15-64, and 65 and up) totaled across gender and education levels. The database also includes the two most recent demographic projections from the UN Population Division—the 2010 and 2012 revisions. Three research teams provided independent projections for GDP—IIASA, OECD and PIK—, harmonized to the same IIASA-based demographic projections. The IIASA and OECD projections were done at the country level and are included in the database. The database also contains GDP projections for the excluded and mostly small countries, using various gap-filling methods.</i>	

**2. Research Goal:** To actively participate in quantitative economic analysis of pressing global issues

Tasks	Responsibility
<b>Trade and Development</b>	<b>Various</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Continue to publish papers on trade, poverty, migration/labor and global supply chains</li> </ul>	Staff and Grads
<i>The Center published numerous papers in this area during the past year. Of special interest is the development of a new version of GTAP-POV covering 18 individual countries in Latin America and the Caribbean. This was undertaken by a consultant to the Inter-American</i>	

<i>Development Bank, under the leadership of Carlos Ludena, with input from the Center. We are currently working on documentation and an application to assess the poverty impacts of climate change.</i>	
<b>Global Energy and Environmental issues</b>	<b>Various</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Continue to publish papers on energy and environmental issues with a special focus on the land-water-energy-climate nexus</li> </ul>	Staff and Grads
<i>The Center continues to be very active in this area, publishing papers on biofuels, land use, water and climate impacts, adaptation and mitigation. Linkages with GEOSHARE have greatly facilitated the development of data bases to support this research, as well as development of the AgMIP tool by Nelson Villoria and collaborators.</i>	
<b>Specific Projects</b>	<b>Various</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>MRIO</li> </ul>	Carrico
<i>Terrie Walmsley and Tom Hertel worked with David Hummels to develop a GTAP-based MRIO for an ADB funded project on supply chains in Asia. For this project, three alternative GTAP-based MRIOs were developed and analytically compared. Further, a new model, GTAP-SC, was developed to incorporate the additional dimensions of an MRIO. This was used to assess the supply chain impacts of localized disasters.</i>	
<i>Currently, Caitlyn Carrico is finalizing an official GTAP MRIO available for GTAP Data Base versions 8 and 9. A Technical Paper detailing the methodology as well as providing an application within the GTAP-SC framework is underway. The GTAP MRIO is currently intended to be released to the public as a Satellite Data Base.</i>	
<ul style="list-style-type: none"> <li>Procurement</li> </ul>	Aguiar
<i>The objective of this project is to improve the government representation in a general equilibrium model and underlying data base of the world economy for a European Commission funded project. We extend the GTAP framework to consider public investment, as well as the origin of imports; and we also modified the model to consider different government procurement regimes.</i>	
<ul style="list-style-type: none"> <li>AKME</li> </ul>	Akgul
<i>The manuscript on firm heterogeneity was submitted for the GTAP Technical Paper Series in October 2014 and received reviews in January 2015. The manuscript is currently being revised and is scheduled to be completed for submission by Summer 2015</i>	
<i>A new firm heterogeneity related project funded by USDA-ERS has been initiated in January 2015. An invited seminar on the firm heterogeneity module of GTAP has been given at ERS in January 2015. This is an ongoing project expected to be completed by Summer 2015.</i>	
<i>If co-financing becomes available, we are planning to work on a new project that involves a larger scale parameterization of the firm heterogeneity module.</i>	
<ul style="list-style-type: none"> <li>Electric Power Database</li> </ul>	Peters
<i>The first iteration of the electric power database was distributed to grant contributors in March 2015 along with accompanying documentation. The second iteration is scheduled for completion prior to the 2015 Board Meeting. The “final” iteration of database and accompanying GTAP Technical Paper is to be completed by August 2015.</i>	
<ul style="list-style-type: none"> <li>Water</li> </ul>	Hertel

*Farzad Taheripour led a World Bank funded project focusing on water scarcity in South Asia. The resulting model represents a further enhancement of the GTAP-BIO-W model used in several recent publications. Tom Hertel and Jing Liu wrote a survey paper for the OECD on water scarcity and economic growth which resulted in a project, to enhance the ENV-LINKAGE model with some of these components.*

- **Income Distribution**

van der Mensbrugge

*In the context of the development of new socio-economic scenarios for the IPCC, this study looks at the potential profile of global income distribution under the five proposed Shared Socio-economic Pathways (SSPs). The approach is done at a macro level and not based on distributional information that would emerge from a more structural analytical framework—such as that from a dynamic CGE model. Each country starts with a given income distribution that is a simple parameterized functional form (e.g. log-normal distribution) and calibrated to the most recent information on country distribution. Depending on the SSP storylines, these country distributions evolve (e.g. greater or lesser equality). The distributions are used to generate a discrete distribution of households for each country that are then pooled together to provide a global distribution from which a number of findings emerge. This is work in progress as we attempt to improve the functional forms used to generate global income distribution.*

### 3. Model Goal: To promote further development of GTAP-based models

Tasks	Responsibility
<b>Technical Papers</b>	<b>Various</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>• Technical paper on Firm Heterogeneity Theory in CGE models</li> </ul>	Dixon et al.
<i>Published</i>	
<ul style="list-style-type: none"> <li>• Technical paper on a GTAP-based Firm Heterogeneity Model</li> </ul>	Akgul, Villoria, Hertel
<i>Paper was submitted for review as a GTAP Technical Paper. Akgul and her collaborators are working on the recommended revisions which should be finalized by mid-summer 2015, published in fall.</i>	
<ul style="list-style-type: none"> <li>• Estimate underlying parameters for Firm Heterogeneity Model</li> </ul>	Akgul, Villoria, Hertel
<i>Under way; will be presented at the Melbourne conference</i>	
<ul style="list-style-type: none"> <li>• Reconciling the GTAP Data Base: Where are the Big Changes?</li> </ul>	Walmsley, Narayanan, Aguiar and McDougall
<i>Under way; being presented at the Melbourne conference</i>	
<b>Software</b>	<b>Various</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>• The Standard GTAP Model in GAMS</li> </ul>	van der Mensbrugge
<i>Many users of the GTAP Data Base are using GAMS as the software platform for model simulation. To better bridge the GEMPACK and GAMS communities, we have developed a GAMS version of the GTAP model that is a replica of the GEMPACK version and complements the GTAPinGAMS version that Tom Rutherford has been generous to share for many years. This new version is still undergoing testing, but should be available to the broad community in the near-future. We are also discussing with Wolfgang Britz the possibility of using his model interface to ease the learning costs of using GTAP in a GAMS environment. In</i>	

<i>the longer term we hope to develop some of the rich tools used in the GEMPACK version to better assess simulation results.</i>	
• GTAPAgg2	Narayanan, Horridge
<i>Work is ongoing, to be finalized in July, for use in version 9.1</i>	
• AgMIP Tool	Villoria and collaborators
<i>This allows the GTAP community to access over 36,000 sets of global gridded climate impact results for agriculture covering the 21<sup>st</sup> century.</i>	

**4. Education Goal:** To expand and improve global economic analysis education worldwide

Tasks	Responsibility
<b>Education Plan</b>	<b>Villoria, Burfisher</b>
<i>Primary Priorities</i>	
• 2014 GTAP Short Course (Purdue)	Villoria, Batta, Douglas
<i>Very successful course was offered at Purdue in August 2014 with a record number of participants and the offering of fellowships.</i>	
• Introducing cutting-edge modeling strategies to GTAP Short Course participants: The GTAP Short Course 2014 will feature work on firm heterogeneity as well as water in agriculture.	Villoria, Liu, Akgul
<i>New course applications were developed and offered on Firm Heterogeneity in the GTAP Model and GTAP-Water.</i>	
• GTAP 101 Course(s)	Burfisher, Villoria, Batta, Douglas
<i>Two successful offerings of GTAP 101 were held in 2014, as well as a winter 2015 offering. Demand for this course remains strong and graduates are beginning to feed into the standard short course.</i>	
• Mentoring Network - Respond to Board's views that stronger connections are needed with universities, including affordable access to training, mentoring of young professionals, and internship/work opportunities. Follow-up with Karingi and Bouët to develop proposal seeking external grant funding to support this outreach.	Villoria, van der Mensbrugge, Burfisher
<i>Mary Burfisher and Antoine Bouët met about potential mentorship opportunities in October 2014. Mary then drafted a preliminary proposal to establish a mentorship network, but has not advanced further on the issue.</i>	
<i>The Centre of Policy Studies, Victoria University also contributed to this item by offering two scholarships to the annual conference in honor of Ken Pearson. Further details on these scholarships can be found in the "Education and Network" section of this document.</i>	
• Education plan implementation	Villoria, Burfisher, Batta, Douglas
<i>GTAP 101 is in its second year with strong enrollment. Strong connections develop between GTAP 101 and the GTAP Short Course as more and more participants of the former enroll on</i>	

<i>the latter. A prototype of an online mini-course or practicum in special topics in applied modeling is under development. Prototype subject is analysis of regional trade agreements.</i>	
<b>Secondary Priorities</b>	
<ul style="list-style-type: none"> <li>• GTAP Live Forums</li> </ul>	Narayanan, Aguiar, Batta, Douglas
<i>No live forums were offered in 2014. With the release of GTAP 9 in 2015, the Center anticipates offering these again in mid-late 2015.</i>	
<ul style="list-style-type: none"> <li>• GTAP-U - Definition of new courses as well as resources needed for their implementation</li> </ul>	Villoria, Batta, Douglas
<i>With the success of our courses, we are also considering development of additional courses with a narrower focus, for example a policy-oriented module on the modeling of regional trade agreements, and a theory-oriented module on the incorporation of heterogeneous firm theory into GTAP-based models.</i>	

**5. Staffing Goal:** To actively seek and encourage talented staff and graduate students

Tasks	Responsibility
<b>Recruitment and Hiring</b>	<b>Various</b>
<b>Primary Priorities</b>	
<ul style="list-style-type: none"> <li>• Research Economist</li> </ul>	Hertel, van der Mensbrugge, Narayanan, McDougall, Aguiar, Kincaid
<i>Hiring process complete. Erwin Corong accepted the position and began with the Center in April 2015.</i>	

**6. Collaboration Goal:** Actively seek opportunities for fostering collaboration with institutions around the world.

Tasks	Responsibility
<b>GTAP Conferences and Board Meetings</b>	<b>Batta, van der Mensbrugge</b>
<b>Primary Priorities</b>	
<ul style="list-style-type: none"> <li>• 2015 Conference and Board Meeting (Melbourne, Australia)</li> </ul>	Batta, CoPS, Productivity Commission
<i>Planning for both events has run very smoothly. A representative from CoPS will present an update at the board meeting on the conference.</i>	
<ul style="list-style-type: none"> <li>• 2016 Conference and Board Meeting (Washington DC, USA)</li> </ul>	Batta, World Bank
<i>The conference committee will meet over lunch during the conference in Melbourne to discuss plenary speakers, organized sessions and funding. Logistical planning is already underway and will continue through the event.</i>	
<ul style="list-style-type: none"> <li>• 2017 Conference: solicit proposals</li> </ul>	Batta, van der Mensbrugge

<i>The Center for Global Trade Analysis prepared and submitted a proposal for the 2017/20<sup>th</sup> Annual Conference to be held at Purdue University in West Lafayette, USA. This proposal was circulated to the board in November for comments. Further information on this proposal will be presented at the board meeting.</i>	
• 2018 Conference: solicit proposals	van der Mensbrugge, Batta
<i>We are still open to receiving proposals for 2018 though Dominique has reached out to potential partners (CIAT, ICESI in Colombia). He will continue to follow up with on this partnership with the hopes of developing a proposal for circulation to the board for consideration in late 2015.</i>	
<b>Seek partners/funding opportunities for collaboration (core)</b>	<b>Various</b>
<i>Primary Priorities</i>	
• Attend IO meetings	Aguiar
<i>Badri Narayanan will be the presenting at the 2015 International Input Output Association Conference.</i>	
• Ongoing work with contributors, see I-O report	Aguiar
<i>New tables received between second and third pre-releases of version 9, see I-O report: <a href="https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=1864">https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=1864</a>.</i>	
• IAMC & EMF	van der Mensbrugge
<i>The Center is represented on two important networks focused on energy markets, emissions and climate change. The Energy Modeling Forum (EMF) has been in existence since the 1970s, originally setup to assess the impacts of the oil crisis of that period. It continues to assess energy markets, but it has also evolved into the primary global research network assessing the economic impacts of greenhouse gas mitigation and much of its work feeds into WGIII of the IPCC. It combines the expertise of more than 20 modeling groups of different model types, but includes many CGE models calibrated to various versions of the GTAP Data Base. The second network is the Integrated Assessment Modeling Consortium (IAMC). The IAMC was setup in 2007 to help coordinate the global research community in support of activities for the IPCC. Though it has a similar membership to EMF, it is a broader consortium that also includes the scientific communities underlying IPCC's WGI and WGII (the climate scientists and research on impacts, adaptation and vulnerability).</i>	
• AgMIP	van der Mensbrugge
<i>The Center is represented on a relatively new network focused on improving the modeling of global agriculture, the Agricultural Intercomparison and Improvement Project (AgMIP). The initial impetus for AgMIP came from the bio-physical models of crop production. As these have been scaled up for global analysis, there was an obvious need to compare model behavior and results. With the growing integration of crop model analysis with economic analysis, AgMIP broadened its mandate to include the main economic models of global agriculture and food. The first phase included 10 models from around the world, 6 of which were GTAP-based CGE models. The work is continuing under a Phase 2 project where the focus will be to flesh-out the agricultural storylines of the SSPs, also known as the representative agricultural pathways (RAPs).</i>	
• AGRODEP	van der Mensbrugge
<i>The Center participates on the steering committee of the African Growth and Development Policy Modeling Consortium (AGRODEP). AGRODEP is an initiative aimed at positioning African experts to take a leadership role in the study of strategic development questions and the broader agricultural growth and policy debate facing African countries. AGRODEP</i>	

<i>facilitates use of economic modeling tools, promotes access to data sources, provides training and research grants, and supports collaboration between African and international researchers.</i>	
• IPTS	Narayanan
<i>IPTS (visit on June 2-3 to discuss about domestic support). ITC, CEPPI and Ken Kawasaki (ongoing work on tariff data and issues, to be included in the conference). UNESCWA (collaboration with Hedi Bchir on tariff revenue targeting).</i>	
• Other potential partnerships/collaborations	Hertel
<i>There is increasing interest on the part of the ecology and geography communities to collaborate with GTAP on the subject of ‘teleconnections’. (See the recent paper in Science referenced below.)</i>	

**7. Communication Goal:** To facilitate communication amongst members of the network as well as between the Center and key stakeholders

Tasks	Responsibility
<b>Improve user support system</b>	<b>Narayanan</b>
<i>Primary Priorities</i>	
• GTAP-L, gtapsupport, contactgtap	Narayanan, Aguiar, Batta, Douglas
<i>Support has been given as usual, through gtapsupport, contactgtap and GTAP-L. Iman Haqiqi will soon be involved in helping users with gtapsupport questions.</i>	
<b>Strategic Communication</b>	<b>Hertel</b>
<i>Primary Priorities</i>	
• Strategic Workshop	Hertel
<i>In November, 2014, the Center held a strategic planning ‘retreat’, facilitated by Krishnamurthy Sriramesh, Professor in the School of Communications at Purdue University. Tom Hertel will report to the Board on the main outcomes of this meeting.</i>	
• GTAP Journal	Hertel
<i>A byproduct of our strategic discussions over the past year is the idea of starting an Open Access Journal. This has progressed to the point where we will be announcing in Melbourne the launching of the “Journal of Global Economic Analysis”. This will be housed in the Center and will supplant the current GTAP Technical Paper Series. The first issue will be published in January 2016, although accepted papers will appear online as soon as they are finalized. There will be two issues per year and there will be sections covering new developments in theory and modeling, econometric work pertinent to the work of the GTAP community, as well as special sections for data base related work and software tools. Co-Editors are Thomas Hertel and Niven Winchester.</i>	

**Proposed Activities over the Next Year and Beyond**

The goals and objectives are discussed in detail below. Here we include a summary of the proposed objectives for the coming year.

**1. Data goal:** To improve the quality of data products

Tasks	Responsibility
<b>Improving the quality of contributed I-O data (core)</b>	<b>Aguiar</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Document the guidelines for contribution of Supply and Use tables</li> </ul>	Aguiar
<ul style="list-style-type: none"> <li>Work with contributors to improve the EU and US IO Tables</li> </ul>	Grad
<i>Secondary Priorities</i>	
<ul style="list-style-type: none"> <li>Implementation of the dwellings module in version 9.1</li> </ul>	McDougall
<ul style="list-style-type: none"> <li>Multi-year Input-Output Tables</li> </ul>	Aguiar
<b>Addition/Improvement of Datasets used in GTAP Data Base (core)</b>	<b>Narayanan</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Investigate possibilities for services sector disaggregation for v10</li> </ul>	Aguiar, McDougall
<ul style="list-style-type: none"> <li>Collaborate with ITC on further splitting tariff dataset and other developments on tariff dataset</li> </ul>	Pichot, Mimouni
<ul style="list-style-type: none"> <li>Commodity tax fixes</li> </ul>	McDougall
<ul style="list-style-type: none"> <li>Agricultural IO tables</li> </ul>	Peterson, McDougall
<ul style="list-style-type: none"> <li>New EU domestic support</li> </ul>	IPTS
<ul style="list-style-type: none"> <li>International Transportation Margins</li> </ul>	Villoria
<ul style="list-style-type: none"> <li>Data and methodological improvements in income/factor taxes</li> </ul>	McDougall
<ul style="list-style-type: none"> <li>Export subsidies</li> </ul>	Laborde
<ul style="list-style-type: none"> <li>Improvements to energy and services trade data processing</li> </ul>	McDougall
<ul style="list-style-type: none"> <li>Domestic Margins</li> </ul>	Corong, McDougall
<ul style="list-style-type: none"> <li>Land use data set</li> </ul>	Villoria, Baldos
<i>Secondary Priorities</i>	
<ul style="list-style-type: none"> <li>Examine possibility of targeting trade balances</li> </ul>	McDougall
<ul style="list-style-type: none"> <li>Examine the availability of NSO data (production, etc., by year) to update IO tables as part of FIT process (when redo FIT)</li> </ul>	Aguiar
<ul style="list-style-type: none"> <li>Examine integration of biofuels into standard data base</li> </ul>	Aguiar, McDougall, Narayanan, Taheripour
<ul style="list-style-type: none"> <li>Domestic support, PSE database for Latin America and Africa – MAFAP</li> </ul>	van Tongeren, Balié
<ul style="list-style-type: none"> <li>Baseline/forecast tool for updates</li> </ul>	Resource dependent
<ul style="list-style-type: none"> <li>GTAPAgg2</li> </ul>	Horridge, Narayanan
<ul style="list-style-type: none"> <li>Agricultural Production Targeting</li> </ul>	Narayanan, Haqiqi
<ul style="list-style-type: none"> <li>Disaggregation of GTAP Sectors</li> </ul>	McDougall, Aguiar
<b>Addition/Improvement of Protection Data (core)</b>	<b>Narayanan</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Update TASTE to v9</li> </ul>	Pelikan, Laborde, Horridge
<b>Satellite Data</b>	<b>Narayanan</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Release any pending satellite datasets (GDyn, GMig2, land use, GTAP-E, non-CO2 emissions) based on version 9</li> </ul>	Aguiar, Golub, McDougall, Villoria, Irfanoglu
<i>Secondary Priorities</i>	
<ul style="list-style-type: none"> <li>Plan about new satellite datasets (e.g. MRIO, POWER)</li> </ul>	Aguiar, Golub, McDougall, Villoria, Irfanoglu

**2. Research Goal:** To actively participate in quantitative economic analysis of pressing global issues

Tasks	Responsibility
<b>Trade and Development</b>	<b>Various</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Continue to publish papers on trade, poverty, migration/labor and global supply chains</li> </ul>	Staff and Grads
<ul style="list-style-type: none"> <li>“Commodity Prices, Remittances, and Migration: Developing Country Implications”</li> </ul>	Carrico, Ahmed, Aguiar
<b>Global Energy and Environmental issues</b>	<b>Various</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Continue to publish papers on energy and environmental issues with a special focus on the land-water-energy-climate nexus</li> </ul>	Staff and Grads

**3. Model Goal:** To promote further development of GTAP-based models

Tasks	Responsibility
<b>Technical and Working Papers</b>	<b>Various</b>
<ul style="list-style-type: none"> <li>A GTAP-MRIO for the GTAP 9 Data Base</li> </ul>	Carrico
<ul style="list-style-type: none"> <li>“A GTAP-E Extension for Emission Abatement Analysis: An Application of Total Requirements Coefficients”</li> </ul>	McDougall, Narayanan
<ul style="list-style-type: none"> <li>“Disaggregating the Electricity Sector in the GTAP Database” the current draft is GTAP Resource #4619 (database and documentation)</li> </ul>	Peters
<ul style="list-style-type: none"> <li>“GTAP-Power: an electricity-detail version of the GTAP model with capacity expansion and factor utilization.” (model version)</li> </ul>	Peters
<ul style="list-style-type: none"> <li>Does IO data stability matter for CGE model results?</li> </ul>	Narayanan, Aguiar, McDougall
<ul style="list-style-type: none"> <li>“Reconciling additivity with the CES—modeling power demand in GTAP”</li> </ul>	Peters, van der Mensbrughe
<b>Software</b>	<b>Various</b>
<ul style="list-style-type: none"> <li>GTAPAgg2</li> </ul>	Horridge, Narayanan
<ul style="list-style-type: none"> <li>The Standard GTAP Model in GAMS</li> </ul>	van der Mensbrughe

**4. Education Goal:** To expand and improve global economic analysis education worldwide

Tasks	Responsibility
<b>Education Plan</b>	<b>Various</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>2015 GTAP Short Course (Purdue)</li> </ul>	Villoria, Keeney, Batta, Douglas
<ul style="list-style-type: none"> <li>GTAP 101 Course(s)</li> </ul>	Burfisher, Batta, Douglas
<ul style="list-style-type: none"> <li>2015 GTAP Dynamic Course (Purdue)</li> </ul>	Aguiar, van der Mensbrughe, Batta, Douglas
<ul style="list-style-type: none"> <li>Further investigate development of online mini-courses on special topics</li> </ul>	Burfisher, van der Mensbrughe, Hertel

**5. Staffing Goal:** To actively seek and encourage talented staff and graduate students

Tasks	Responsibility
<b>Recruitment and Hiring</b>	<b>Various</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Career path development</li> </ul>	van der Mensbrugghe
<ul style="list-style-type: none"> <li>Replacement plan for Nelson Villoria</li> </ul>	van der Mensbrugghe

**6. Collaboration Goal:** Actively seek opportunities for fostering collaboration with institutions around the world.

Tasks	Responsibility
<b>GTAP Conferences and Board Meetings</b>	<b>Batta, van der Mensbrugghe</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>2016 Conference and Board Meeting (Washington DC, USA)</li> </ul>	Batta, World Bank
<ul style="list-style-type: none"> <li>2017 and 2018 Conference Proposals</li> </ul>	Batta, van der Mensbrugghe
<b>Seek partners/funding opportunities for collaboration (core)</b>	<b>Various</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Attend IO meetings</li> </ul>	Aguiar
<ul style="list-style-type: none"> <li>Ongoing work with contributors, see IO report</li> </ul>	Aguiar
<ul style="list-style-type: none"> <li>IAMC &amp; EMF</li> </ul>	van der Mensbrugghe
<ul style="list-style-type: none"> <li>AGRODEP</li> </ul>	van der Mensbrugghe
<ul style="list-style-type: none"> <li>AgMIP</li> </ul>	van der Mensbrugghe
<ul style="list-style-type: none"> <li>ITC, CEPPI and Ken Kawasaki</li> </ul>	Narayanan
<ul style="list-style-type: none"> <li>UNESCWA</li> </ul>	
<ul style="list-style-type: none"> <li>Other potential partnerships/collaborations</li> </ul>	Hertel, van der Mensbrugghe

**7. Communication Goal:** To facilitate communication amongst members of the network as well as between the Center and key stakeholders.

Tasks	Responsibility
<b>Improve user support system</b>	<b>Narayanan</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>GTAP-L, gtapsupport, contactgtap: Continue offering support</li> </ul>	Narayanan, Aguiar, Batta, Douglas
<b>Strategic Communication</b>	<b>Hertel</b>
<i>Primary Priorities</i>	
<ul style="list-style-type: none"> <li>Continue to build upon the 2014 strategic meeting working with Sriramesh Krishnamurthy</li> </ul>	Hertel
<ul style="list-style-type: none"> <li>Journal of Global Economic Analysis</li> </ul>	Hertel

# The GTAP Data Base and Other Data Projects: Progress and Future Objectives

## GTAP 9 Release

GTAP 9 Data Base has been released in May 2015. Most of the satellite datasets have been scheduled to release by June 2015. Following are the major features of this data base.

1. It has three reference years of 2004, 2007, and 2011 as well as 120 countries and 20 aggregate regions for all 57 GTAP commodities. This version also features 5 labor categories<sup>3</sup> added to the other 3 factors of production considered (i.e., Capital, Land, and Natural Resources).
2. Newly added regions: Benin, Burkina Faso, Guinea, Togo, Rwanda, Brunei Darussalam, Jordan, Dominican Republic, Jamaica, Puerto Rico, Trinidad and Tobago
3. Updated/Improved regions: Brazil, Colombia, Paraguay, Belarus, Pakistan, Turkey, China, Japan, Korea, Singapore, Taiwan, Australia, New Zealand, Norway, Malawi, Mozambique, Nigeria, Senegal, Tanzania, Zambia
4. New macro-economic data for 2004, 2007, and 2011
5. New trade data for 2011
6. New protection data for 2007 and 2011
7. New Time-Series Bilateral Trade data from 1995-2012
8. New bilateral services trade data for 2004, 2007, and 2011
9. New energy data for 2004, 2007, and 2011
10. Revised OECD domestic support and agricultural production targets for 2004, 2007, and 2011
11. Revised treatment of indirect/production taxes in the agricultural and energy sectors
12. Decomposition of tariff (into ad valorem and specific)
13. CO2 emissions dataset integrated into core data base

Going forward, we have the following areas to work on, in near future and in the long-term.

## Issues for the Near Future

GTAP 9.1 Data Base is expected to be released in December 2015 to the Board Members and to the public by March 2016. The reason for this release was that we had several issues included in GTAP 9 Data cycle, of which many could not be addressed comprehensively enough on time for GTAP 9 Data Base. Following is a list of these issues, to be addressed in GTAP 9.1 Data Base.

### 1. *Commodity tax fixes*

One of the most important fixes required in the GTAP Data Base is for the defect in our international data targeting module, wherein many of the commodity tax rates from the IO tables have been zeroed out. This requires some significant changes in our 'FIT' module, which is designed to target numbers from international sources for trade, tariff and energy datasets.

### 2. *Agricultural IO tables*

We employ a global agricultural Input-Output dataset synthesized by Everett Peterson for disaggregating agricultural sectors in the contributed IO tables. The currently used dataset was developed during the construction of version 5 data base and hence is quite outdated. Everett Peterson has updated this dataset for the years 2004, 2007 and 2011; we expect to incorporate this in version 9.1.

### 3. *New EU Domestic support*

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<sup>3</sup> These 5 categories are those used by International Labour Organization (ILO).

Our collaborators at IPTS in the European Commission have contributed a new version of EU domestic support. It has several new features, sources and methodologies. Although this is already complete, we did not include it in version 9, owing to the fact that it needs some review and consideration by experts in the area. We will discuss this in a workshop at IPTS, Seville on June 2 and 3, and then incorporate this new dataset, with changes as needed, into GTAP 9.1 Data Base.

#### **4. *International Transportation Margins***

Data on modal shares for international transportation margins in the GTAP Data Base has been quite challenging to procure and process. Nelson Villoria has been working on this with assistance from a graduate student in the department of agricultural economics at Purdue University. We expect this work to result in an improvement in this area in the long-run, not only in GTAP 9.1 Data Base.

#### **5. *Dwellings***

In version 8 data cycle, Angel Aguiar had developed a module that deals with dwellings data across the world. For the lack of official data sources, this attempt was not pursued further. We expect to work on this and incorporate it in GTAP 9.1 Data Base.

#### **6. *Data and methodological improvements in Income/factor taxes***

Since version 6, we have been employing the same dataset on income and factor tax rates, for all GTAP Data Base releases. In addition, there are some methodological defects in the way we process this dataset. We intend to rectify the situation by improving the methodology and updating the tax rates, using the IMF Government Financial Statistics dataset. Collection and preliminary processing by Zekarias Hussein, former graduate student, has been done, further processing is required with Robert McDougall taking the lead.

#### **7. *Export Subsidies***

We have not been able to update the data on export subsidies so far in version 9. We expect contribution from David Laborde in time to include it in version 9.1.

#### **8. *Input-Output datasets***

Contribution of IO tables is ongoing; in particular, we expect to receive the US IO table from our contributor Marinos Tsigas.

#### **9. *GTAPAgg2***

For the standard GTAP Data Base, we have been developing GTAPAgg and Flexagg packages, but the satellite datasets have always been coupled with Flexagg. While this has not been a major issue, it is important to have an alternative to Flexagg for the ease of users who are not familiar with the command-line. With this purpose in mind, we are working with Mark Horridge on a new version of GTAPAgg, which will, apart from handling any GTAP-based datasets, additionally have the flexibility of a command-line interface and removal of encryption and license, to further reduce confusion. Badri Narayanan will be closely working with Mark Horridge on this before the 2015 Board Meetings in Melbourne, to get it finalized by July 2015.

### **Issues for the Long Term**

Following are the issues about which we are concerned and are hoping to make progress starting from version 10.

**1. *Domestic Margins***

Introducing and improving domestic margins dataset has been a priority at the Center for a long time now, but not much progress has been made on it, owing to lack of resources. We now have Erwin Corong working on this issue and expect to make some progress on it in version 10 data cycle.

**2. *Agricultural Production Data***

We came across some enormous differences between versions 8 and 9 in terms of production in some sectors, most notable vegetables and fruits and other crops. The reason was because some of the crops that come under these GTAP sectors are classified as ‘other Non-MPS’ sectors by the OECD. In version 9, we fixed this issue by distributing this sector across the two GTAO sectors noted herein. In the long-term, we would like to undertake some systematic comparisons between OECD and FAO datasets in order to arrive at the most reasonable numbers for agricultural production in GTAP Data Base.

**3. *Multi-year Input-Output Tables***

As we increase the number of years in GTAP Data Base, we need to be able to capitalize on the multiple submissions of IO tables to the Center for many countries over the years. The idea is to use different IO tables for different reference years, for at least some of the GTAP countries. For this, we have to separately identify two aspects in these IO tables that could have led to the differences between different submissions: bug-fixes in the newer versions and genuine economic structural changes. Ideally, we should use IO tables for every reference year (or close to it). This is a challenging task and we expect to spend more time thinking about this and coming up with a strategy to deal with it.

**4. *New Satellite Datasets***

With increasing number of GTAP-based datasets being developed both by the Center and the network, there is a scope to increase the number of satellite datasets we have. Some examples include GTAP-MRIO, GTAP-POWER and GTAP-Bio-fuels. This is something we would like to make progress on, from GTAP 10 Data Base.

**5. *Disaggregation of GTAP Sectors***

There has been demand from the users and GTAP Board members to increase the number of sectors in GTAP Data Base. Bio-fuels and services sectors have been the most important in this regard. We anticipate working on identification of sectors to disaggregate and then on framing strategies to embark on the tasks needed. The earliest for any development to happen in this regard in GTAP 10 data base.

**6. *Land use dataset***

There have been inconsistencies between the land rents in the standard GTAP Data Base and the land use satellite dataset, mainly in livestock and forestry sectors. We shall address some of them in version 9.1 cycle, but a complete set of revisions needed to fix these inconsistencies can be expected for the version 10 data cycle.

# Research and Model Development: Progress and Future Objectives

**Research Goal:** To actively participate in quantitative economic analysis of pressing global concern in the areas of Trade and Development, Energy-Economy Interactions, Land Use and Climate Change

**Model Goal:** To promote further development of GTAP-based models

## Core Funded Projects

The further development of the standard and dynamic GTAP Models continue to be core research activities for Center staff. Related to this theme the following activities were conducted this year.

### GTAP Model Updates

The core GTAP Model has been unchanged since 2003. To more readily allow for extension, we propose to give the model a modest facelift. Some potential changes include 1) differentiating between activities and commodities; 2) separating out investment expenditures from production activities; 3) introducing a new set to represent production factors; 4) a new production nest for aggregate intermediate demand; 5) adding regional indices to some of the key parameters (e.g. substitution elasticities); 6) a harmonized treatment of government and investment expenditures using a generic CES expenditure function; 7) implementing a nested CET specification for the allocation of domestic output; 8) introducing a sector-specific supply curve for the natural resource factor; 9) introducing a supply curve for the aggregate supply of factors; and 10) use a generic CET transformation function for the allocation of other factors—allowing for full factor mobility. Other modifications could potentially include uniform treatment of taxes and subsidies, and a harmonized treatment of Armington agents (i.e. a single set of all Armington agents). We also plan to update and unify the model documentation that is currently scattered in different publications.

**Staff Involved:** Dominique van der Mensbrugghe, Data team and Iman Haqiqi

## Externally Funded Projects

**Project Name:** TTIP project with USDA

**Staff Involved:** Zeynep Akgul, Nelson Villoria and Tom Hertel

**External Collaborators:** Jayson Beckman

**Description:** This project involves a broader trade policy analysis in the context of TTIP negotiations by using the newly developed firm heterogeneity module of GTAP. Implications of removing trade barriers such as non-tariff measures and tariff-rate quotas are investigated with a focus on US-EU beef market access.

**Status:** This is an ongoing project expected to be completed by June 2015.

**Project Name:** Public procurement data base extension and modelling modifications for analysis purposes, European Commission, 2014-15

**Staff Involved:** Thomas Hertel, Angel Aguiar, Robert McDougall, Badri Narayanan, Caitlyn Carrico

**External Collaborators:** Joseph Francois (World Trade Institute & CEPR), Robert Stehrer (The Vienna Institute for International Economic Studies, wiiw), Lucian Cernat and Zornitsa Kutlina-Dimitrova (European Commission)

**Description:** The objective of this project is to improve the government representation in a general equilibrium model and underlying data base of the world economy. The current structure of GTAP poses serious limitations when it comes to analyzing public procurement. First of all, it is likely that the current data base does not accurately capture the mix of domestic and imported

goods which are purchased by governments. This is because the source IO tables usually have just one vector of imports, which the contributor distributes across uses following the domestic or total (domestic plus imports) allocation. Secondly, even when accurate information about the composition of imports is available, the GTAP Data Base does not provide specific information on which countries supply the current purchases. The absence of such sourcing information is problematic, as it holds the key to determining which countries will benefit from a liberalization of public procurement rules. Finally, since the GTAP Data Base fails to distinguish public from private investment, a large share of public procurement —namely that associated with infrastructure development —is not available for analysis.

**Status:** In order to remedy these limitations, we are currently undertaking a project, funded by the EU Commission which is focused on both data and modelling extensions. For this project, we extend the GTAP Data Base to consider public investment, as well as the origin of imports. We also modified the model to consider different government procurement regimes to test the implications of liberalization scenarios. Progress will be presented at 18th Annual Conference on Global Economic Analysis (June 17-19, 2015). This project will end in September 2015.

**Project Name:** RDCEP-U. Chicago/NSF: Decision Making Under Uncertainty

**Staff Involved:** Alla Golub and Tom Hertel

**External Collaborators:** Yongyang Cai, University of Chicago; Jevgenis Steinbuks, World Bank

**Description:** dynamic stochastic analysis of agricultural land use, GHG emissions and sustainability

**Status:** Final year of 5 year project

**Project Name:** DOE/Stanford: Improving Integrated Assessment Models

**Staff Involved:** Tom Hertel, Uris Baldos and Jing Liu

**External Collaborators:** Noah Diffenbaugh and John Weyant

**Description:** This project aims to improve the representation of the energy-land-water-climate nexus in Integrated Assessment Models

**Status:** Mid-way through second round of support

**Project Name:** GEOSHARE

**Staff Involved:** Tom Hertel and Nelson Villoria

**External Collaborators:** Carol Song, Rosen Center for Advanced Computing, Navin Ramankutty, Stefan Siebert, Andrew Nelson, Jawoo Koo

**Description:** Development of data base, software and institutional infrastructure to facilitate the development and sharing of geospatial data bases for analysis of global agriculture and environmental issues.

**Status:** Pilot project completed at the end of 2014. Some work on HUBZero on going. Awaiting stakeholders joining the Board.

**Project Name:** International Agricultural R&D Investment Needs for Global Futures

**Staff Involved:** Uris Baldos and Tom Hertel

**External Collaborators:** Keith Fuglie

**Description:** This project focuses on the role of R&D investments in promoting future productivity growth in agriculture and seeks to assess the environmental and food security consequences of such investments.

**Status:** Ongoing

**Project Name:** Water Scarcity in South Asia

**Staff Involved:** Farzad Taheripour, Tom Hertel and Badri Naryanan

**External Collaborators:** Sebnem Sahin

**Description:** This project aims to assess the consequences of water scarcity for economic growth and food security in South Asia

**Status:** Just completed

**Project Name:** Enhancement of the OECD Env-Linkages model and incorporation of a new water module

**Staff Involved:** Dominique van der Mensbrugghe, Tom Hertel, Farzad Taheripour, Iman Haqiqi

**External Collaborators:** Rob Dellink, Jean Chateau, François Chantret (OECD)

**Description:** The OECD Environment Directorate has been using a GTAP-based global recursive dynamic computable general equilibrium model since the late 1990s to support its analytical work, part of which feeds into the Directorate's occasional Environmental Outlook report. The Directorate requested assistance to give the existing (GAMS) code a face-lift and improve its performance after many years of use and to incorporate a new water module based on the Center's experience with water modeling.

**Status:** A first version of the new code has been delivered and the project is expected to be completed by September 2015.

**Project Name:** Will Global Change Jeopardize the US Forest Carbon Sink?

**Staff Involved:** Thomas Hertel (PI), Alla Golub (Co-PI)

**External Collaborators:** Brent Sohngen (Ohio State University), Yongyang Cai (University of Chicago), Ken Judd (Stanford), Jevgenijs Steinbuks (World Bank).

**Description:** US forests offset 10-15% of gross national GHG emissions. However, recent projections by the US Forest Service suggest that this sink may be in jeopardy as a consequence of the confluence of climate change, biofuels, growing population and rising incomes. Existing research on this topic suffers from serious limitations, failing to accurately model climate impacts on forestry, link regional and global drivers, capture key economic responses to global change, incorporate uncertainty, and capture the interplay between forestry, agriculture and energy sectors. The proposed research will remedy these gaps through novel stochastic dynamic programming analysis of land use, forestry and agriculture. The analysis will provide new tools to assess pressing policy issues, including: the interaction between biofuels and forest carbon sequestration, the valuation of new technologies in the context of uncertain future economic growth, the effects of climate change on land use, and optimal dynamic adaptations to climate change in the agricultural and forestry sectors.

**Status:** Ongoing. Just completed the first quarter – finalizing model equations and data.

**Project Name:** Analysis of Russian Import Restrictions with GTAP Model

**Staff Involved:** Alla Golub (PI), Badri Narayanan (Co-PI).

**External Collaborators:** Ekaterina Krivonos, FAO

**Description:** Starting August 2014, Russia banned all imports of beef, pork, poultry, milk, milk products, as well as fruit, vegetables and fish from the United States, the European Union, Norway, Canada and Australia. The ban was introduced in reaction to Western sanctions over the crisis in Ukraine. The ban could increase food prices faced by the consumers in Russia, change size and structure of Russia's import flows, and impact global trade. This project employs GTAP global economic data base and GTAP computable general equilibrium model to analyze economic impacts of Russia's food import ban.

**Status:** Planned to be completed in May, 2015.

**Project Name:** Managing Wealth of Carbon Intensive Nations, Climate Change Group, The World Bank, April 15-July 31, 2015.

**Staff Involved:** Dominique van der Mensbrugghe, Wally Tyner, Farzad Taheripour, Badri Narayanan, Jeff Peters, Iman Haqiqi.

**External Collaborators:** Gregorz Peszko, Neha Muki, Alexander Golub, Julie Rozenberg, John Rogers, Maryla Maliszewska (World Bank)

**Description:** A number of low and middle-income countries have historically developed a comparative economic advantage in energy and carbon intensive sectors, whether extractive, energy or manufacturing and have traditionally been more concerned about the impact of climate change policies than they are about the impacts of climate change. This study aims to explore a large range of development paths for these countries, under various policy environments, to elucidate development policies that are robust over most of the potential range. In an initial phase, the World Bank's Envisage model will provide a set of scenarios subject to a number of exogenous assumptions to highlight the challenges and opportunities for this set of countries. Future work will focus on Monte Carlo-type analysis and robust decision making under uncertainty.

**Status:** This project is just getting started.

**Project Name:** Updating the World Bank's Envisage model, Development Prospects Group, The World Bank, July 1, 2015-June 30, 2016

**Staff Involved:** Dominique van der Mensbrugghe, Badri Narayanan, Jeff Peters, Iman Haqiqi

**External Collaborators:** Amer Ahmed, Maryla Maliszewska (World Bank), Roberto Roson (University of Venice) and Martina Sartori (University of Trento)

**Description:** The World Bank wishes to update the Envisage model to the latest version of the GTAP 9 Data Base, including the satellite databases (notably energy, non-CO2 emissions, and the future release of the power database). Simultaneously, efforts will be underway to update the climate change impact functions in Envisage—partly to reflect the new GTAP release, but also to reflect the significant amount of new research and data available with the IPCC's Fifth Assessment report.

**Status:** Under discussion.

### **Publications**

Aguiar, A.H., and T.L. Walmsley (2014). "The Importance of Timing in the U.S. Response to Undocumented Immigrants: A Recursive Dynamic Approach", *Economic Modelling* 41 (August 2014): 253–62.

Avetisyan, M., T.W. Hertel and G. Sampson (2014). "Is Local Food more Environmentally Friendly? The GHG Emissions Impacts of Consuming Imported vs. Domestically Produced Food", *Environmental and Resource Economics* 58(3):415-462. <http://link.springer.com/article/10.1007%2Fs10640-013-9706-3>

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- Akgul, Z., N. Villoria and T.W. Hertel. (2015). “Firm Heterogeneity for Mainstream Policy Analysis: Introducing Melitz into the GTAP Model,” Invited Seminar at USDA-ERS, January 2015.
- Baldos, U.L.C. and T.W. Hertel, “Looking Back to Move Forward on Model Validation”, presentation to the Global Land Project Open Science Meetings, Berlin, March 21, 2014.
- Hertel, T.W. “Global Change and the Challenges of Sustainably Feeding a Growing Planet”, Filley-Geary Annual Lecture, Department of Agricultural Economics, University of Nebraska, Lincoln, March 6, 2015.
- Hertel, T.W. “Global Change and the Challenges of Sustainably Feeding a Growing Planet”, Opening plenary address to the meetings of the Australian Agriculture and Resource Economics Society, Rotorua, New Zealand, February 11, 2015.
- Hertel, T.W., based on work with Uris Baldos, Noah Diffenbaugh, Monika Verma and others, “Climate Change, Agriculture, Land Use and Poverty”, Presentation to the Johns Hopkins School of Advanced International Studies (SAIS), February 5, 2015, Washington, DC.
- Hertel, T.W., based on work with Uris Baldos, Noah Diffenbaugh and Monika Verma, “Climate Change, Agriculture and Food Security”, Presentation to the Climate Change Group of the World Bank, February 5, 2015, Washington, DC.
- Hertel, T.W., written with Jing Liu and Farzad Taheripour, “Modeling Water Scarcity in Global Economic Models”, presented to the fourth annual PIAMDDI workshop on Integrated Assessment Modeling, December 19, 2014.
- Hertel, T.W., written with Jevgenijs Steinbuks and Wallace E. Tyner, “What is the Social Value of Second Generation Biofuels?” presented at the meetings of the American Geophysical Union, December 18, 2014.
- Hertel, T.W., “Market Integration, Teleconnections and Global Land Use Change”, presented to the workshop *Operationalization of telecoupling concepts for land system science*, Aeschi Park, Switzerland, December 2, 2014.
- Hertel, T.W., based on work with Uris Baldos, Noah Diffenbaugh and Monika Verma, “Climate Change, Global Markets and Food Security”, Presentation to the RNRFC Congress on *Adapting Food Production to a Changing Climate*, December 9-10, 2014, hosted by the AGU in Washington, DC.
- Hertel, T.W., written with Jing Liu, “Water Scarcity and Economic Growth”, presented to the OECD workshop on environment and economic growth, Paris, October 2, 2014

- Hertel, T.W., written with Uris Baldos and Navin Ramankutty, “Global market integration increases likelihood that a future African Green Revolution could increase crop land use and CO2 emissions”, presented to the Dyson School, Cornell University, September 26, 2014.
- Hertel, T.W., “Global land use and the environment”, presented to a workshop on ecology and the environment, Cambridge University, UK, September 21, 2014.
- Hertel, T.W., written with Uris Baldos and Navin Ramankutty, “Global market integration increases likelihood that a future African Green Revolution could increase crop land use and CO2 emissions”, presented in an organized session at the AAEA meetings, Minneapolis, July 28, 2014.
- Hertel, T.W., written with Uris Baldos, “Bursting the Bubble: A Long Run Perspective on Food Prices”, presented at the Center for Food Security and the Environment, April 29, 2014.
- Hertel, T.W., written with Uris Baldos and Navin Ramankutty, “Does Agricultural Intensification Spare Land? Revisiting History and Exploring the Future”, presented to the Department of Earth and Environmental Systems Science, April 23, 2014.
- Hertel, T.W., written with Uris Baldos and Navin Ramankutty, “Does Agricultural Intensification Spare Land? Revisiting History and Exploring the Future”, presented to the Department of Applied Economics, University of Minnesota, April 4, 2014.
- Hertel, T.W. “Global Change and the Challenges of Sustainably Feeding a Growing Planet”, Plenary presentation to the Global Land Project Open Science Meetings, Berlin, March 20, 2014.
- Hertel, T.W., written with Uris Baldos and Navin Ramankutty, “Does Agricultural Intensification Spare Land? Revisiting History and Exploring the Future”, presented at the Global Land Project Open Science Meetings, Berlin, March 20, 2014.
- Hertel, T.W. “Environmental Sustainability and Food Security in an Integrated Global Economy”, presentation to the Global Land Project Open Science Meetings, Berlin, March 20, 2014.
- Hertel, T.W. “Global Change and the Challenges of Sustainably Feeding a Growing Planet”, seminar presented at CEPII, Paris, March 18, 2014.

# Education and Network

## Additions to the GTAP Paper Series

The following were added to the GTAP Technical, Working and/or Research Memoranda Series in the past year.

### Technical Papers

- **Extending the GTAP Data Base and Model to Cover Domestic Support Issues using the EU as Example**  
by Urban, Kirsten, Hans Grinsted Jensen and Martina Brockmeier  
GTAP Technical Paper No. 35

### Working Papers

- **Bursting the Bubble: A Long Run Perspective on Crop Commodity Prices**  
by Baldos, Uris Lantz and Thomas Hertel  
Publication: GTAP Working Paper No. 80

## Courses

The Center continues to examine the ways in which it educates network members. Demand for the standard GTAP Short Course has recovered in the past few years and with the addition of new course applications as well as the offering of fellowships, we are continuing to see increased demand for the standard course. The GTAP 101 Course, now onto its fifth offering continues to be in high demand and is beginning to feed graduates into the standard short course as planned. After postponing the 2014 Dynamic Short Course offering due to staffing challenges within the Center, the course is being re-worked and reintroduced in 2015.

### 2015 Course Offerings

- GTAP 101 – January 26-March 8
- GTAP Short Course – July 11-17
- GTAP 101 – September 14-October 30
- Dynamic GTAP Short Course – October 9-14

### Future Educational Goals

- Further investigate development of online mini-courses on special topics

## Conferences

Proposals for the conferences below (when available) can be accessed at:

[https://www.gtap.agecon.purdue.edu/events/Board\\_Meetings/2015/supp\\_material.asp](https://www.gtap.agecon.purdue.edu/events/Board_Meetings/2015/supp_material.asp)

### *Ken Pearson Scholarship*

In 2015, Centre of Policy Studies, Victoria University, graciously endowed two scholarships, in the name of Ken Pearson, in recognition of his many contributions to the GTAP Network.

The purpose of the scholarships was to provide a program to support the participation of promising young researchers at the annual GTAP conference and encourage their contribution to the use and further development of analytical software for CGE modelling.

Eligible candidates were early career researchers, within five years of the start of their career, and active in undertaking applied model-based analyses of real world problems using GEMPACK and/or related software. It was also required that candidates had a paper be accepted into the conference.

Thirty-seven individuals applied for consideration and after deliberation by the scholarship committee, comprised of a CoPS and GTAP designee, as well as a member of the conference program committee, the following two recipients were awarded the inaugural Ken Pearson Scholarships.

Dr. Heinrich Bohlmann  
CGE Researcher  
University of Pretoria

Mr. Giacomo Schwarz  
PhD Student  
ETH Zurich and MIT

***2015 Conference (Melbourne, Australia)***

Philip Adams, Centre of Policy Studies, Victoria University, will present an update on preparations for the 2015 conference at the board meeting. This conference is being jointly organized by CoPS along with the Center for Global Trade Analysis, with sponsorship provided by CSIRO, ACIL Allen Consulting, BAEconomics, the Australian Treasury and CoPS.

***2016 Conference (Washington DC, United States)***

The World Bank in Washington DC, site of the 2004 annual conference, will once again partner with the Center to host the conference in 2016. We expect other board members in the Washington, DC area to join in the effort, contributing financial and logistical support as well as sponsoring special sessions. Maryla Maliszewska of The World Bank will present an update to the board on this conference.

***2017 Conference (Proposed: West Lafayette IN, United States)***

The Center for Global Trade Analysis prepared and submitted a proposal for the 2017/20<sup>th</sup> Annual Conference to be held at Purdue University in West Lafayette, USA. This proposal was circulated to the board in November 2014 for comments. Further information on this proposal will be presented at the board meeting for a formal vote.

***2018 Conference (tbd)***

Dominique van der Mensbrugge has already made contact with a potential partner for the 2018 conference. He and Ginger Batta will continue to follow up with this entity with the hopes of developing a proposal for circulation to the board for consideration in late 2015.

**Research Fellows**

At the 2014 Advisory Board Meeting, it was decided to open the nomination process for GTAP Research Fellows to also accept submissions from network members who, in the past five years, have:

- contributed to the GTAP Data Base, and/or
- presented a paper at the annual conference

In March 2015, Ginger Batta issued a call for nominations, which was sent to 553 GTAP Network members. The criteria for nomination remained unchanged from previous years.

At the Advisory Board Meeting, Lucian Cernat, GTAP Research Fellows Committee Chair, will report on the committee's recommendations for awardees and invite a vote from the board. The GTAP Research Fellow Committee includes: Cernat (Chair), Tom Hertel and Ken Kawasaki with Ginger Batta providing support.

**GTAP Network, Website and Usage Reports**

Reports on the GTAP Network, website and usage may be found at:

[https://www.gtap.agecon.purdue.edu/events/Board\\_Meetings/2015/supp\\_material.asp](https://www.gtap.agecon.purdue.edu/events/Board_Meetings/2015/supp_material.asp)

## Center Finances and Staffing

### Finances

To be discussed at the meeting.

### Staffing

**Staffing Goal:** To actively seek and encourage talented staff and graduate students

As previously noted, Dominique van der Mensbrugghe began his position as the Center's Director and Research Professor in mid-2014. The hiring process for the open Research Economist position was also completed and Erwin Corong joined the Center in April 2015. Nelson Villoria will be leaving the Center in July 2015 to join the faculty of Kansas State University. His teaching responsibilities for the short course will be taken over by Roman Keeney, a Purdue faculty member and long-time instructor for the GTAP Short Course. To help with the Center's communication strategy, the Center has hired on a part-time basis Prof. Krishnamurthy Sriramesh. Sriramesh was instrumental in leading the Center's annual strategic workshop and meets with the Center's management team on a regular basis to discuss our communications and outreach strategy.

### Allocation of Resources over the Next Year

An overview of how individuals are funded and all the activities they will spend their time over the next 12 months is detailed below. As you see, many of the Center's staff are externally funded (not supported by consortium funds or data base sales).

Staff Member	Status	Allocation						
Angel Aguiar	50% core	Working with I-O Table contributors	I-O Documentation	I-O Educational Materials	Data Base (Pre-processing of macro data, dwellings, I-O disagg)	Research Projects	Short Courses	Dynamic Course
Uris Baldos	100% projects	Satellite data (Land use and Land cover)	Research					
Ginger Batta	100% core	Event Management (proposals, finances, logistics, participant relations, execution, reporting)	Product Management (sales, distribution, licensing, reporting)	General GTAP Network Communication	Promotional Materials (design, development, distribution)	General Center administrative duties		
Erwin Corong	100% core	Integration of domestic trade, transport, wholesale and retail margins into data base and model						
Jeremy Douglas	100% core	Website						
Alla Golub	100% projects	Dynamic GTAP-E Model	Energy and Environ research	Satellite data	Grad student supervision	Document GTAP-E Model	Short Courses	
Thomas Hertel	25% core	Assist with Conference	Research	Grad Student Supervision	Satellite data			
Wendy Kincaid	100% core	Assist with Grants	Staff visas and hiring	Budgeting and Finances	General Center administrative duties			

Staff Member	Status	Allocation						
Jing Liu	100% projects	GTAP-BIO-W Data Base and Model	Development of fine-resolution estimation of land use conversion at the global scale					
Robert McDougall	100% core	Data Base Issues (Taxes, Energy and FIT)	Mentoring of data team	Documentation	Document GTAP-E Model	Research and Courses		
Badri Narayanan	80% core	Oversee release schedule	Website data documentation	Data Base (Protection, trade, agricultural production targeting and support)	Satellite data schedule	Live sessions and seminars	GTAPAgg and FlexAgg	Research and Courses
Dominique van der Mensbrughe	50% core	Managing the Center and relations with the Advisory Board	Model development	Research	Scenario development	Grad student supervision	Short Courses	
Nelson Villoria	50% projects	Short Course and Education Plan	International Transportation Data	Grad student supervision	Research	Heterogeneous firms	Land Use and Land Cover Database and Aggregation Software	
Graduate Students	various	Macro transmission Tech paper	Heterogeneous firms	Data Base (Agr Production Targeting, macro, Elasticities, Electricity Disaggregation)	Short Courses	Special data Projects (Skills)	Research Projects CGE Envisage, OECD ENV-Linkages	Satellite data projects (Land use, CO2)