



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

2011

**Compiled by
Terrie Walmsley**

**With contributions from
Angel Aguiar, Meghan Alexander, Ginger Batta, Alla Golub,
Thomas Hertel, Robert McDougall, Badri Narayanan,
Jevgenijs Steinbuks, Farzad Taheripour, Wallace Tyner and
Monica Woods**

**Center for Global Trade Analysis
Purdue University**

**Background Paper for the GTAP Advisory Board Meeting
Venice, Italy
June 13-14, 2011**

Table of Contents

Opening Letter	4
Executive Summary	5
GTAP Advisory Board Members and Other Attendees	6
GTAP Advisory Board Meeting Agenda	9
I. Mission and Goals	12
II. Center Staff, Research Associates, Graduate Students and Visitors	14
III. Overview: Progress and Future Objectives	
Progress towards Goals over Past Year	18
Proposed Activities over the next year and beyond	24
IV. The GTAP Data Base and Other Data Projects: Progress and Future Objectives	
The GTAP 8 Data Base: Review of Progress	28
The GTAP Data Base: The Way Forward	32
Other Data Related Activities: Progress and Priorities	34
V. Research: Progress and Future Objectives	
Trade and Development	36
Global Environmental Issues	38
VI. The Model, Education and the Network: Progress and Future Objectives	
Model Goal: To promote further development of GTAP-based Models	42
Education Goal: To expand and improve global economic analysis education worldwide	42
VII. Finances, Budgets and Staffing Plan	
Budget	44
Staffing and Resources Plan	44
VIII. Other Business	
Research Fellows	47
Conference Proposals	47
New Technical Papers, Working Papers and Research Memoranda	47
Report on GTAP Usage and the GTAP Website	48
IX. Appendices	
Appendix 1: List of Issues for the Discussion during the Session on “Data Base and Research Issues”	49

Appendix 2: Further Details on the Revisions made to GTAP Country Classification
..... 51

List of Supplementary Materials available on the GTAP Website

(http://www.gtap.agecon.purdue.edu/events/Board_Meetings/2011/supp_material.asp)

Agency Reports

Annual Report on I-O Tables

GTAP Website and Network Report

GTAP Usage Report

NSF Software Infrastructure Proposal

GEOSHARE (<http://www.agecon.purdue.edu/foresight/>)

2011 Venice Conference Proposal

2012 Geneva Conference Update

2013 Shanghai Conference Proposal

GTAP Graduate Student CVs

Research Fellows CVs

PURDUE

UNIVERSITY

CENTER FOR GLOBAL TRADE ANALYSIS

May 18, 2011

Dear Board Members,

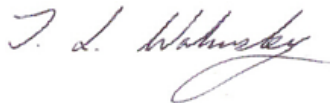
In May 2011 the Center released its second pre-release of the GTAP 8 Data Base to the board. This release included revised protection data for 2007 from Houssein Boumellassa (CEPII), based on the ITC-CEPII MacMAP Data Base, as well as improvements in the macro data (thanks to Angel Aguiar and Zekarias Hussein); domestic support and agricultural production targeting (thanks to Hans Jensen and Hsin Huang); EU-27 dwellings (Angel Aguiar), MFA export tax equivalents (Badri Narayanan) and in the commodity and production tax treatment (Badri Narayanan and Angel Aguiar). New data for Kuwait (David Green) and an updated Venezuelan IO table (Jorge Luis Hernandez and Roberto Ferrer) were also included. We hope to release the final GTAP 8 Data Base to the public by the end of the year.

Climate change and energy-related research continues to grow in interest amongst advisory board members and the network. Below we outline the current and future research that the Center is undertaking in this area which includes projects in the areas of bio-fuels, new energy technologies, global land use for food and fuel, climate change impacts and climate change mitigation possibilities.

We would also like to welcome Jevgenijs Steinbuks and Monica Woods to the Center. Jevgenijs has already spent some time assisting Robert McDougall with the energy data for version 8, as well as working on several energy-related research projects. Monica joined us in April as Managing Director and we look forward to the great benefits this new role will bring to the Center. Monika Verma and Csilla Lakatos also joined the Center as post-doctoral staff members following the completion of their PhDs; and Thomas Chappuis has joined us for a year in Australia - he was previously at CEPII.

As you will see in the following document, the GTAP team has continued to work towards its goals. I hope you enjoy reading what we have done and our thoughts on the year ahead. We look forward to discussing these issues with you in Venice.

Yours Sincerely,



Terrie L. Walmsley
Director, Center for Global Trade Analysis
Purdue University

Executive Summary

Background

- The GTAP 8 Data Base release schedule is progressing well and on target for a public release by December 2011. Significant progress has been made on energy, protection and taxes; and new I-O tables have been received for Kuwait, Venezuela and the Philippines, with more expected shortly. Improvements have also been made in agricultural domestic support and agricultural production targeting.
- The Center has appointed Jevgenijs Steinbuks as a Research Fellow to work on a special environmental project and we are fortunate that he has also lent a hand with the energy data.
- Monica Miller Woods joined the Center in April, 2011 as Managing Director, in order to assist with the day-to-day management of the Center.
- Continued growth and success in research activities in the area of bio-fuels and land use, with new initiatives underway in the climate change area.
- Numerous possibilities for collaboration in the areas of data, open source software infrastructure, and satellite data sets have appeared, including GEOSHARE, an NSF Proposal on software infrastructure, the Reunion project and the USITC on MRIO, Social Hotspot, the UNECA and AGRODEP on African data.

Challenges for the upcoming year and beyond

- Work on the GTAP 8 Data Base is progressing well. Issues related to the construction include:
 - a) We are still waiting to receive further updates on the trade data from Mark Gehlhar.
 - b) Unfortunately we have not yet received the skills split data discussed at last year's Board meeting. At this stage we are not sure it will make it into the GTAP 8 Data Base release at the end of the year.
 - c) Issues related to ensuring quality of the regional data bases, including dwellings data and peer review of new country submissions, will also be important.
- Continue offering the GTAP community state-of-the-art trade protection data.
- Working with potential collaborators to ensure continued supply of the GTAP Data Base and other quality global datasets to our network members.
- Our ability to continue to attract and retain quality staff.

Recommended Strategies

- We hope to make the additional skills data available in an interim release in the coming year.
- We now have a staff member, Angel Aguiar, who is dedicated to working with contributors and national statistical offices to obtain quality I-O data.
- Sébastien Jean has taken the lead in working with Mondher Mimouni from ITC-Geneva to ensure that we have a protection dataset for the GTAP 8 Data Base. We will hear more about these efforts, and the parallel efforts of David Laborde on the TASTE tool at the board meeting.
- It is hoped that over the next two years Monica Woods will be able to take over many of Terrie Walmsley's day-to-day responsibilities in the Center so that Terrie will be able to pursue more of the important new collaborations that are emerging.
- At this point in time we have no plans to hire more permanent staff. Instead we are taking the opportunity to periodically hire graduate students for an interim period upon completion of their PhD's to assist us with near term data and research projects.

GTAP Advisory Board Members¹ and Others Attendees

Liwayway Adkins, liwayway.adkins@doe.gov
US Department of Energy, Washington, DC, USA

Anders Aeroe, aeroe@intracen.org
International Trade Centre, Geneva, Switzerland

Joseph Atta-Mensah, jattamensah@uneca.org (absent)
Stephen Karingi, skaringi@uneca.org
UNECA, Addis Ababa, Ethiopia

Martin Banse, martin.banse@vti.bund.de
Johann Heinrich von Thünen Institute (vTI), Braunschweig, Germany

John Beyer, jbeyer@nathaninc.com
Nathan Associates, Arlington, VA, USA

Antoine Bouët, a.bouet@cgiar.org
International Food Policy Research Institute (IFPRI), Washington, DC, USA

Martina Brockmeier, martina.brockmeier@uni-hohenheim.de
University of Hohenheim, Stuttgart, Germany

Lucian Cernat, Lucian.CERNAT@ec.europa.eu
European Commission, Brussels, Belgium

Aziz Elbehri, aziz.elbehri@fao.org
FAO, Rome, Italy

Richard Garbaccio, garbaccio.richard@epa.gov
US Environmental Protection Agency, Washington, DC, USA

Paolo Giordano, paolog@iadb.org (absent)
Masakazu Watanuki, masakazuw@iadb.org
Inter-American Development Bank, Washington, DC, USA

Mitsuhide Hoshino, hoshino-mitsuhide@rieti.go.jp (absent)
Kenichi Kawasaki, k-kawasaki@frc.nomura.co.jp
Research Institute of Economy, Trade and Industry (RIETI), Tokyo, Japan

Hsin Huang, Hsin.HUANG@oecd.org
Jean Chateau, Jean.Chateau@oecd.org
OECD, Paris, France

Sébastien Jean, sebastien.jean@grignon.inra.fr
CEPII, Paris, France

¹ Agency reports are available in the supplementary materials.

Hans Grinsted Jensen, hans@foi.dk
Danish Research Institute of Food Economics (FOI), Frederiksberg, Denmark

Patrick Jomini, pjomini@pc.gov.au
Productivity Commission, Melbourne, Australia

Robert Koopman, robert.koopman@usitc.gov
US International Trade Commission, Washington, DC, USA

Hiroaki Kuwahara, aki.kuwahara@unctad.org
UNCTAD, Geneva, Switzerland

Suchada Langley, slangle@ers.usda.gov (absent)
Amanda Leister, aleister@ers.usda.gov
ERS/USDA, Washington DC, USA

Patrick Low, patrick.low@wto.org
World Trade Organization, Geneva, Switzerland

Will Martin, wmartin1@worldbank.org
The World Bank, Washington, DC, USA

Fumihira Nishizaki, fumihira.nishizaki@cao.go.jp (absent)
Kenichi Kawasaki, k-kawasaki@frc.nomura.co.jp
Economic and Social Research Institute (ESRI), Tokyo, Japan

Sergey Paltsev, paltsev@mit.edu
The MIT Joint Program on the Science and Policy of Global Change, Cambridge, MA, USA

Hom Pant, hom.pant@abares.gov.au
The Australian Bureau of Agricultural and Resource Economics & Sciences (ABARES), Canberra, Australia

Steven Rose, srose@epri.com
EPRI (Electric Power Research Institute), Global Climate Change Research Group, Washington DC, USA

Hans van Meijl, hans.vanmeijl@wur.nl
Agricultural Economics Research Institute (LEI), The Hague, The Netherlands

Juzhong Zhuang, jzhuang@adb.org
Asian Development Bank, Manila, Philippines

Member at Large

Mark Horridge, mark.horridge@monash.edu
Monash University, Melbourne, Australia

Visitors

Francesco Bosello, francesco.bosello@feem.it
Fondazione Eni Enrico Mattei (FEEM), Venice, Italy

Joseph Francois, joseph.francois@jku.at
Johannes Kepler University, Linz, Austria

David Laborde, d.laborde@cgiar.org
International Food Policy Research Institute (IFPRI), Washington, DC, USA

Angela Marigo, angela.marigo@feem.it
Fondazione Eni Enrico Mattei (FEEM), Venice, Italy

Mondher Mimouni, mimouni@intracen.org
International Trade Centre, Geneva, Switzerland

GTAP Advisory Board Meeting Agenda

Monday, June 13	
12:00pm-1:30pm	Lunch
1:30pm-3:00pm	<p>Welcome and Overview Chair: Thomas Hertel</p> <ul style="list-style-type: none"> • Introductions (20 min) - Thomas Hertel • Overview and Issues (20 min) - Terrie Walmsley • Data Base: Progress and Future Directions (20 min) - Badri Narayanan <p><i>Discussion (30 min)</i></p>
3:00pm-3:30pm	Coffee Break
3:30pm-5:00pm	<p>GTAP Data Base Issues Chair: Lucian Cernat</p> <ul style="list-style-type: none"> • I-O Tables (15 min) - Angel Aguiar • EU I-O Tables (15 min) - Joseph Francois • Other Issues (15 min) - Robert McDougall <p><i>Discussion (45 min)</i></p>
7:00pm	Dinner

Tuesday, June 14	
9:00am-9:45pm	<p>GTAP Data Base Issues: Protection Chair: Will Martin</p> <ul style="list-style-type: none"> • Protection <ul style="list-style-type: none"> - Sebastien Jean (10 min) - Mondher Mimouni (10 min) - David Laborde (10 min) <p><i>Discussion (15 min)</i></p>

9:45am-10:30am	<p>GTAP Data Base Issues Chair: Patrick Jomini</p> <ul style="list-style-type: none"> • MRIO (10 min) <ul style="list-style-type: none"> - Robert Koopman - Joe Francois - Terrie Walmsley • Baseline Data (10 min) <ul style="list-style-type: none"> - Terrie Walmsley • GEOSHARE (10 min) <ul style="list-style-type: none"> - Thomas Hertel <p><i>Discussion (15 min)</i></p>
10:30am-11:00am	Coffee Break
11:00am-12:00pm	<p>Discussion of Data Base and Research Issues Chair: Terrie Walmsley</p>
12:00pm-1:30pm	Lunch
1:30pm-3:15pm	<p>The Network Chair: Hsin Huang</p> <ul style="list-style-type: none"> • 2011 Conference Proposal (10 min) <ul style="list-style-type: none"> - Francesco Bosello and Angela Marigo <p><i>Discussion (10 min)</i></p> • 2012 Conference Report (10 min) <ul style="list-style-type: none"> - Patrick Low <p><i>Discussion (10 min)</i></p> • 2013 Conference Report (10 min) <ul style="list-style-type: none"> - Monica Woods <p><i>Discussion (10 min)</i></p> • Research Fellows Report and committee nominations (15 min) <ul style="list-style-type: none"> - Antoine Bouët <p><i>Discussion (30 min)</i></p>
3:15pm-3:45pm	Coffee Break
3:45pm-5:30pm	<p>Priorities for Forthcoming Year Chair: Thomas Hertel</p> <ul style="list-style-type: none"> • Budget and Staffing (20 min) <ul style="list-style-type: none"> - Terrie Walmsley <p><i>Discussion (20 min)</i></p>

	<ul style="list-style-type: none"> • Revisit Priorities for Next Year (20 min) <ul style="list-style-type: none"> - Terrie Walmsley <p><i>Discussion (45 min)</i></p>
7:00pm	Dinner

Wednesday, June 15	
10:00am-12:30pm	Additional Meetings Conference 2012 Logistics meeting (1 hour) Satellite Data working group meetings (2 hours)
2:00pm-5:00pm	Additional Meetings Europe project Meeting (2 hours) Conference 2012 Host meeting (1 hour)

I. Mission and Goals

Our Mission

To provide leadership in economic policy analysis through better data, fostering collaboration and research.

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.
- *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 insights.
- Avoiding duplication in data production is efficient.
- Collaboration enhances individual efforts.
- Having more trained users enriches policy debates.

Our Vision

In 2020, GTAP is an exceptionally vibrant network of global economic policy analysts, with more than 10,000 individuals in 150 countries making contributions. The GTAP Data Base and Models are used in research centers throughout the world, leading to ever greater transparency in global economic analysis. GTAP-based results are influential among decision makers. After 10 years of intensive model validation efforts, GTAP-based models are widely accepted in the professional literature. Indeed, editors of leading journals actively seek out GTAP-based papers on contemporary policy issues.

The GTAP Data Base remains at the core of the Center. National and international agencies actively collaborate with the Center, sending their staff to Purdue to learn and contribute to the GTAP Data Base construction process and hosting GTAP staff. This cooperative arrangement by which the data base is now assembled has spawned rapid growth, with active collaborators in more than 100 countries. It is now possible for these agencies to scrutinize the effect of key assumptions on the data base and propose modifications to the official GTAP Data Base. Center staff are located around the world in a hub-and-spoke system centered at Purdue University. They collaborate with the network on important global issues, and offer local short courses. The 50 consortium members meet regularly through teleconferences to contribute ideas and to help keep the Center's efforts focused on our vision.

Goals 2008-2012

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

II. Center Staff, Research Associates, Graduate Students and Visitors

Center Staff

Angel Aguiar, Research Economist and Data Base Construction Specialist

Angel is a Data Base Construction Specialist and Research Economist. His responsibilities include the macro datasets and working with the contributors of the regional Input-Output data for the GTAP Data Base. Angel also teaches on GTAP Short Courses and undertakes research on global migration.

Meghan Alexander, Program Manager

Meghan manages the logistics, budgets and implementation of GTAP short courses, conferences and the board meeting at home and abroad; liaises with advisory board members and Purdue administration; and oversees the Center's finances.

Ginger Batta, Communications and Information Technology Specialist

Ginger is responsible for the design, development, and maintenance of the GTAP website; the sales, distribution, and reporting of all GTAP products; and the content organization and development of the annual conference and participant relations for all GTAP events.

Thomas Chappuis, Economist

Thomas Chappuis is a visitor of the Center located at the University of Melbourne. Thomas is working on a project to update and further develop the GDyn baseline. October 2010 - present

Alla Golub, Research Economist

Alla works on multiple special projects related to climate change mitigation policy. She is currently working with DOE on dynamic extension of GTAP-E model; with FAO on a project that evaluates the effects of GHG mitigation policies on global livestock production; with EPRI on two separate projects evaluating offsets market potential and dynamic interactions between climate change mitigation and bioenergy policies.

Thomas Hertel, Executive Director and Distinguished Professor

Thomas's focus is on strategic issues and new research directions for the Center, as well as Consortium development. He also supervises graduate students and is increasingly involved in a number of environment-related projects at the Center.

Csilla Lakatos, Post-Doctoral Research Associate

Csilla started as a Post-Doctoral Research Associate at the Center in February 2011 and she is currently visiting USITC. Csilla's work focuses on developing capacity for the modeling foreign direct investment and the activities of multinational companies in a computable general equilibrium setting.

Robert McDougall, Deputy Director

Robert works on special projects which significantly improve the GTAP Data Base and Models. This year he has been working on energy data, energy modeling, and the development of programs to compare data bases and ensure 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 the construction of the GTAP 8 Data Base. Badri is also conducting research on a range of issues including child labor and tariff escalation. He teaches in the GTAP short courses as well.

Jevgenijs Steinbuks, Post-Doctoral Research Associate

Jevgenijs is currently funded under an NSF grant through the University of Chicago. He is examining issues of long run competition for land in the face of uncertainty. He has also taken the lead on the processing of IEA Energy data and he has been collecting input for a restructuring of the GTAP energy module.

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.

Monika Verma, Post-Doctoral Research Associate

Monika is a post-doc with the Center working with Thomas Hertel on investigating the relationship between the energy and commodity markets including the aspects of climate change and energy policy mandate. This work is being done in collaboration with Stanford and is funded by the DOE.

Nelson Villoria, Research Assistant Professor

Nelson is part of the Center's management committee, coordinates the GTAP Short Courses held at the Purdue campus, supervises graduate students, and conducts research on aggregate land supply and international trade.

Terrie Walmsley, Director and Research Associate Professor

Terrie oversees the GTAP Data Base development and other data initiatives; supervises graduate students and undertakes research on the Dynamic GTAP Model and labor migration. Terrie also leads the Center's Short Courses and board meetings.

Monica Miller Woods, Managing Director

Monica manages the Center's day-to-day operations working to maximize graduate student, staff and financial resources. Her efforts are focused on strategic partnerships and increasing local and global awareness through marketing, communication and outreach strategies.

Research Associates

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.

Kemal Sarica, Departmental Research Associate

Kemal is an energy economist with the Department of Agricultural Economics. He is primarily interested in energy market modeling, in particular policy design and implementation and resulting market responses in terms of price volatility and investment. He is currently investigating the electricity market, using an agent based modeling scheme.

Farzad Taheripour, Departmental Research Associate

Farzad is an energy economist with the Department of Agricultural Economics and 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 works on emissions due to land use changes associated with the first and second generations of bio-fuels as well.

Graduate students (country of origin)²

Zeynep Akgul (Turkey)

Zeynep Akgul is a PhD student in the Department of Agricultural Economics. She joined the Center for Global Trade Analysis in January 2011. She is currently working on the macroeconomic mechanisms and alternative closures in the GTAP Model.

Misak Avetisyan (Armenia)

Misak completed his PhD in the Department of Economics in May 2011. Misak was working on the Greenhouse Gas impacts of international trade.

Uris Baldos (Philippines)

Uris Baldos is a PhD student in the Department of Agricultural Economics. He helped develop the global land use database for GTAP version 7. In addition, he has been assisting Thomas Hertel in the empirical implementation of a long-run partial equilibrium model on agricultural land use.

Zekarias Hussein (Ethiopia)

Zekarias is a PhD student in the Department of Agricultural Economics. He is investigating the poverty implications of climate change mitigation policies, and working on updating the macroeconomic data and agricultural production targeting for GTAP 8. He will also be working on the GTAP Africa Project.

Zeynep Burcu Irfanoglu (Turkey)

Burcu is a PhD student in the Department of Agricultural Economics. She is currently working on climate change mitigation policies in agriculture and forestry. She is, in general, interested in multilateral environmental agreements, international trade, mechanism design, and experimental economics.

Csilla Lakatos (Romania)

Csilla completed her PhD in the Department of Agricultural Economics in January 2011. This year Csilla's work focused on specific aspects of the dispute settlement process at the WTO, more specifically on incorporating intellectual property retaliation in the GTAP Model and Data Base.

Amanda Leister (USA)

Amanda Leister completed her PhD in the Department of Agricultural Economics in December, 2010. Her dissertation focused on the potential implications of the WTO Special Safeguard Mechanism in Agriculture. Amanda continues to investigate the economic implications of trade policy as a research economist in the Market and Trade Economics Division of the USDA Economic Research Service.

Jing Liu (China)

Jing is a PhD student in the Department of Agricultural Economics. She is just beginning to work on the project aimed at incorporating water (river basins) into the GTAP Model.

Azza Mohamed (Egypt)

Azza is a PhD student in the Department of Agricultural Economics. She is currently working on the incorporation of non-ad valorem tariffs into the GTAP Model.

² See supplementary materials for graduate student CVs.

Visitors to the Center

Munisamy Gopinath, Professor, Agriculture and Resource Economics Department, Oregon State University, Corvallis, OR, March 4, 2011

John Reilly, Associate Director for Research, The MIT Joint Program on the Science and Policy of Global Change, Cambridge, M.A., USA, November 5, 2010

Yontem Sonmez, Senior Lecturer, University of Central Lancashire, Preston, United Kingdom, 2010 (visited University of Melbourne)

Zhi Wang, US International Trade Commission (USITC), Washington D.C., USA, October 15, 2010

William Powers, US International Trade Commission (USITC), Washington D.C., USA, October 15, 2010

Joshua Elliot, Todd Munson and Ian Foster, University of Chicago and Argonne National Lab Computation Institute, Washington D.C., USA, October 14, 2010

Michael Grubb, Senior Research Associate, Faculty of Economics, Cambridge University, UK, October 13, 2010

Antoine Bouet, International Food Policy Research Institute (IFPRI), Washington D.C., USA, October 4, 2010

III. Objective and Accomplishments

Progress towards Goals over Past Year

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

(http://www.gtap.agecon.purdue.edu/events/Board_Meetings/2010/documents/2010_Summary.pdf).

Data Goal: To Improve the quality of Data Products.

<i>Tasks</i>	<i>Individuals</i>
Improving the quality of contributed I-O data (core)	
– Primary:	
• Review of I-O Data, peer review system and reviewer guidelines, chopping block, dwellings, update sectoral concordances, Annual report	AA
• Representative table	AA and BN
• Factor taxes, Commodity taxes	RMD

Progress:

Once again we have a dedicated staff member, Angel Aguiar, whose main focus is the quality of the regional data. This has allowed the Center to continue with the implementation of the previously proposed strategy for improving the quality of the I-O tables. A peer review system has been implemented with reviews being undertaken on the Spanish and Russian I-O tables.

Angel has also been working on developing a methodology for improving the dwellings data in GTAP Data Base for those countries that do not have dwellings information in their I-O tables. Angel has also updated the sectoral concordances in lieu of recent changes in the ISIC concordance. These new concordances will result in some changes to the I-O data and will be important for contributors to version 9 of the GTAP Data Base.

The Annual Report on I-O tables is available in the board meeting supplementary materials: http://www.gtap.agecon.purdue.edu/events/Board_Meetings/2011/supp_material.asp. Some of the issues from this report are discussed below.

Badri Narayanan updated the representative table used in the GTAP Data Base construction process for disaggregation of the I-O data.

A last year's board meeting, Nico van Leeuwen highlighted some issues with the commodity taxes in the GTAP Data Base which were the result of incorrectly zeroing out certain tax data in the country data. The first step in fixing this problem was to revise the protection module. Badri Narayanan has also been working on this.

Improving the quality of contributed I-O data (core)	
– Secondary Priority:	
○ Collaborations with AGRODEP (Africa) and WIOD (EU)	AA and TW

Progress:

This year the UNECA hosted a short course in Addis Ababa, Ethiopia. At this course Terrie Walmsley and Scott McDonald met with the head of the new African Center for Statistics of the UNECA to discuss how GTAP could work directly with statistical offices in Africa to improve African data. The AGRODEP project is also moving ahead quickly and we hope to collaborate further with them in the future.

Terrie Walmsley also met with a group associated with the International I-O Association, including WIOD, EXIPOL and IDE-JETRO in Reunion in March 2011 to discuss ways in which the group could collaborate. Terrie will present some of the discussions from this meeting at the board meeting.

Improving the quality of contributed I-O data (core)	AA and SMD
– Tertiary priority:	BN (energy)
○ Make GAMs programs from EU project available	and AA (I-O)
○ Incorporation of Metadata and treatment flags	RMD and
○ adjust I-O contributor requirements to include domestic margins	AA
○ I-O disaggregation module	

Progress:

Angel Aguiar has put together a HAR file which provides basic data on the regional data contributed to the GTAP Data Base. It is expected that this file will be distributed as part of GTAPAgg in version 8. Progress on the other issues is expected for version 9.

Addition and Improvement of Other Datasets (core)	
– Primary:	
• skill splits,	TW and
	USITC
• protection module	BN
• protection working committee (Will Martin, Chair)	BN and TH

Progress:

Badri Narayanan has made significant progress in revising the protection and taxes data construction modules to reinstate the commodity tax data from the regional I-O data.

At the 2010 board meeting, it was decided that the protection data would again be contributed by CEPII, and that ITC-Geneva would also produce a protection dataset for comparison purposes in preparation for taking over as official contributors for version 9. Sébastien Jean of CEPII has been working with ITC-Geneva to produce a joint ITC-CEPII protection dataset for version 8. This new contribution will be discussed at the board meeting. David Laborde will also join us to discuss TASTE.

Unfortunately, no progress has been made on the skills data. Recently we were contacted by a team at Harvard University – Social Hotspot – who has been using the GTAP Data Base for Social Life Cycle analysis. We are looking into whether this data can be used in conjunction with the USITC contribution to help with the new skills splits.

Addition and Improvement of Other Datasets (core)

- Secondary:
 - transportation data RMD
 - energy RMD
 - splitting specific and *ad valorem* tariffs BN
 - MRIO table BN, Joe Francois, others

Progress:

Work on the transportation data has not proceeded this year. There are plans for Nelson Villoria and a graduate student to work with David Hummels on this data in the new year.

Jevgenjis Steinbuks and Robert McDougall have begun updating the energy data for v8. Improvements have also been made to the energy module.

Badri Narayanan is currently working with a graduate student and Nelson Villoria to split specific and ad valorem tariffs.

In October 2010, Zhi Wang from the USITC visited the Center and presented his work on the development of a Multi-region I-O (MRIO) table and discussed how the Center and Zhi Wang might collaborate to produce a global MRIO. Joe Francois has also offered to provide GTAP with detailed information on trade by intermediate or final use so that an improved MRIO can be produced. The Center does plan to release the GTAP Data Base as an MRIO and is currently looking for a graduate student to assist in this area.

Monitoring Data Quality using Comparison Programs (core)

- Priority:
 - o Comparison programs RMD
- Secondary Priority:
 - o Comparing Simulation Results across data bases BN
 - o Produce reports on how much regional I-O tables changed as a result of FIT for documentation and contributors AA and BN

Progress:

Robert McDougall continues to undertake and improve upon the comparison programs and reports. Comparing releases has now become an integral part of the Center's review of the GTAP Data Base.

Versions and Documentation

- Priority:
 - o Finalize Documentation of v7 BN and RMD
 - o v8 Pre-releases, two base years, Multiple Versions of GTAP Data Base (chopping block), Documentation of Construction Process BN
- Secondary priority:
 - o alternative formats (MRIO, summary tables) BN

Progress:

Two chapters of the documentation for the GTAP 7 Data Base are still to be included on the GTAP website.

Two pre-releases of the GTAP 8 Data Base have now been released to the board. Details of the

current release are provided below.

Satellite Data Bases (non-core)

- Priority:
 - o Make available CO2 emissions data base and Land use data base TH, MA and AG
 - o set up a website for sharing baseline data (USITC and European board members) TW
 - Secondary Priority:
 - o Time as a Barrier Data Base (Peter Minor), GMig2 data, FDI data (CEPII) TW and AA
-

Progress:

Progress has been made on the following satellite datasets.

1) An updated version of the Land use data base consistent with the v7 database is now available to the GTAP network thanks to Misak Avetisyan. Documentation of this database can be found at: https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=3426

2) Thomas Chappuis and Terrie Walmsley recently updated and released the new FDI data from CEPII on the GTAP website.

Thomas Chappuis has also been working with Terrie Walmsley to survey network members producing baselines for their models, and updating the baseline for the GDyn model. By the end of the year baseline data and papers on various baselines are expected to be shared with the network over the website.

Open Sourcing

- Secondary Priority: Examine ways in which to circulate some of the later-stage modules to contributors (core) BN and RMD
-

Progress:

Currently Center Staff are collaborating with the staff at the Computation Institute and AgMIP (Agricultural Model Inter-comparison and Improvement project) to submit a long-term interdisciplinary proposal for an NSF Software Infrastructure call for proposals. This proposal broadly aims at developing open-source software for agricultural and resources database and models. GTAP's main goal in this proposal is facilitate expert inputs for the GTAP energy data construction programs and the estimation of parameters. Parameter estimation would also require the construction of GTAP time-series data for a long period, say, 1992-2007, which will be a part of this proposal. Open-source software may also be developed for reviewing and validating the data and models contributed by the users. This project, if funded, would require active collaboration and inputs from the GTAP Consortium and network members. Further details are provided in the supplementary materials.

8. **Research Goal:** To actively participate in quantitative economic analysis of pressing global concerns.
-

<i>Tasks</i>	<i>Individuals</i>
Trade and Development	
- Priority:	
o Firm heterogeneity tech paper	TW
o Papers using GDyn Model	TW

- Papers using PE-GE model BN
 - Additional papers using poverty module TH and MV
 - Secondary priority:
 - Papers on Labor migration TW and AA
 - Non-tariff barriers and in particular services non-tariff barriers Grad required
 - Child Labor BN and TW
-

Progress:

Progress on the development of research papers related to the Dynamic model, poverty, labor migration and child labor are listed below in the research section. The Center is currently looking for graduate students to work on firm heterogeneity and NTBs.

Global Energy and Environmental issues

- Priority: continue to publish papers, incorporate second generation bio-fuels into GTAP, incorporate water and river basins into a modified GTAP Model, and improve representation of mitigation opportunities in agriculture and forestry. (non-core) TH, WT, AG, FT and graduate students
-

Progress:

There has been progress on the development of research papers related to land use, biofuels and water. Further details can be found in the research section.

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

<i>Tasks</i>	<i>Individuals</i>
Actively seek out potential papers for the GTAP Technical Papers (core) <ul style="list-style-type: none"> – Priority: <ul style="list-style-type: none"> ○ GDyn-E Model (contingent on funding) AG ○ Documentation of poverty module – to be reviewed and on the web by the end of 2010 TH and MV ○ Firm Heterogeneity Model TW 	

Progress:

Work has begun on the development of the GDyn-E model by Alla Golub. A paper using this model will be presented at the conference.

A paper on the poverty module is also currently under review for the GTAP Technical paper series and we recently received a submission documenting issues related to tariff aggregation which will be sent to reviewers shortly.

A graduate student is also working with Nelson Villoria, Terrie Walmsley, Robert McDougall and Tom Hertel to document the macro-transmission mechanisms in the GTAP model.

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

<i>Tasks</i>	<i>Individuals</i>
Make short course materials more widely available to public (core)	
– Priority:	
○ Short course in Purdue (August) and Ethiopia (March).	TW, GB, MA
○ Continue internal training of staff and PhD's	TW and AA
○ live forums	BN
○ I-O courses and other data sessions	AA and BN
– Secondary:	
○ marketing to potential Graduate students	TH
○ User courses (WTO, ADB)	TW and AA

Progress:

The 2010 GTAP short course in Purdue was a success with 32 individuals from 13 countries attending. The UNECA also hosted a short course in Ethiopia in March 2011. The UNECA was able to fund 15 of the participants who attended this course, with the World Bank funding an additional three participants. The course was attended by 23 participants from 13 countries in Africa. An I-O course was also held in Ethiopia, funded by the World Bank, to teach participants how to contribute I-O data to the GTAP Data Base.

Monica Woods, our new managing director will be putting together a marketing plan over the next year to help us market GTAP both internally to Purdue and externally to potential board members and graduate students.

At the conference, a meeting will take place with the WTO to examine the possibility of hosting a special users course after the GTAP conference in Geneva. If you are interested in assisting us with this new course please let Terrie Walmsley know.

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

<i>Tasks</i>	<i>Individuals</i>
Seek a new person to assist with data base work (core)	
– Priority: seek a post-doc to work on energy data	TW and MA

Progress:

Jevgenijs Steinbuks joined the Center last year to work on special projects related to energy and environment. We have been fortunate that he has also spared some time to assist the data team with the energy data. We hope Jevgenijs will continue to assist us with the energy data.

Csilla Lakatos also joined the Center staff in November 2010. Csilla will be working closely with the USITC on developing a foreign affiliates database and model.

Following a strategic meeting in October 2010, the Center decided that it needed to hire a Managing Director to assist with the management of the Center. After an extensive search, Monica Woods joined us in April, 2011.

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

<i>Tasks</i>	<i>Individuals</i>
Seek partners and funding opportunities for collaboration (core)	
– Priority	
○ Post Doc at USITC and explore further collaboration on data	TW, RMD and BN
○ Examine potential collaboration with Joe Francois to undertake projects with the European Commission	TH and TW
○ Collaborate with the LEI on issues related to land use, agriculture and the environment	TH and NV

Progress:

Csilla Lakatos joined the Center staff in November, 2011. She will be working closely with the USITC and the Center.

Joe Francois, the Center and a number of European GTAP advisory board members joined a consortium and applied for approval to undertake projects for the European Commission. This proposal was successful and as a result this consortium will begin undertaking projects for the European Commission. A meeting is scheduled for June 15, on the Wednesday following the Board meeting. Board members interested in learning more about this initiative are welcome to attend.

Other collaborations include the work being done with the USEPA, DOE and FAO on land use and environmental issues; with UNECA, World Bank and AGRODEP on Africa; and with the International I-O Association.

Proposed Activities over the next year and beyond

The goals and objectives are discussed in detail in sections IV, V and VI below. Here we include a summary of the proposed objectives.

1. **Data Goal:** To Improve the quality of Data Products.

<i>Tasks</i>	<i>Individuals</i>
Improving the quality of contributed I-O data (core)	
– Primary:	
• Undertake peer reviews of several I-O tables (including India, Senegal and Brazil)	RMD
• Improve the treatment of the dwellings sector	BN, TW
• Collaborate with UNECA, World Bank and AGRODEP to improve African I-O data	
• Collaborate with European board members (and EUROSTAT) to improve EU data	TW
– Secondary Priority:	
○ Make GAMs programs to move from supply and use to GTAP format	TW

<ul style="list-style-type: none"> – Tertiary priority: <ul style="list-style-type: none"> • Incorporation of Metadata and treatment flags • adjust I-O contributor requirements to include domestic margins • I-O disaggregation module 	BN and RMD RMD RMD
Addition and Improvement of Other Datasets used in GTAP Data Base (core)	BN
<ul style="list-style-type: none"> – Primary: <ul style="list-style-type: none"> • Incorporation of skill splits from USITC and examination of the Social Hotspots work on skills data • Alterations to construction program to fix commodity tax issues • Review protection data set and work with contributors (ITC-Geneva and CEPII) • Energy data 	TW and grad RMD RMD and JS
<ul style="list-style-type: none"> – Secondary: <ul style="list-style-type: none"> • transportation data • splitting specific and <i>ad valorem</i> tariffs • TASTE 	NV and grad
Monitoring Data Quality using Comparison Programs (core)	BN
<ul style="list-style-type: none"> – Secondary Priority: <ul style="list-style-type: none"> ○ Comparing Simulation Results across data bases ○ Produce reports on how much regional I-O tables changed as a result of FIT for documentation and contributors 	BN AA and BN
Versions and Documentation	BN
<ul style="list-style-type: none"> – Priority: <ul style="list-style-type: none"> ○ Finalize Documentation of v7 ○ Final release of v8, two base years, Multiple Versions of GTAP Data Base (chopping block) – Secondary priority: <ul style="list-style-type: none"> ○ Africa version of the GTAP Data Base ○ Documentation of Construction Process ○ MRIO version (Zhi Wang and Joe Francois) 	RMD TW and RMD
Satellite Data Bases (non-core)	
<ul style="list-style-type: none"> – Priority: <ul style="list-style-type: none"> ○ Make available satellite datasets for v8 (CO2 and non-CO2 emissions, Land use, GDyn, Migration etc) ○ set up a website for sharing baseline data ○ Intra-institutional data (Yontem Sonmez and Scott McDonald) ○ Time as a Barrier Data Base (Peter Minor) 	BN, TH, AA, TW and AG TC and TW TW TW
Open Sourcing	BN
<ul style="list-style-type: none"> – Secondary Priority: <ul style="list-style-type: none"> ○ Work with Joshua Elliot on a proposal to make open source programs which can be used to manipulate the GTAP Data Base 	RMD

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

<i>Tasks</i>	<i>Individuals</i>
Trade and Development	

- Priority:
 - Continue to publish papers on trade, poverty, migration/labor. TW, TH, NV, MV, BN, AA and grads

Global Energy and Environmental issues

- Priority:
 - Continue to publish papers on energy and environmental issues. TH, WT, NV, AG, JS, FT and graduate students
-

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

<i>Tasks</i>	<i>Individuals</i>
Actively seek out potential papers for the GTAP Technical Papers (core)	
– Priority: <ul style="list-style-type: none"> ○ GDyn-E Model ○ Finalize review technical paper on poverty module ○ Finalize review of Tariff aggregation tools (Will Martin and co-authors) 	AG TH and MV TW TW
– Priority: <ul style="list-style-type: none"> ○ Firm Heterogeneity Model 	

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

<i>Tasks</i>	<i>Individuals</i>
Increase access of Education to the network (core)	
– Priority: <ul style="list-style-type: none"> ○ Short course in Purdue (August) ○ Work with potential European hosts on courses in Europe ○ Review web and on-site course materials to streamline courses and offer services more affordably ○ Develop a course for users of CGE analysis to be held in Geneva following the conference 	NV TW and MW NV and TW TW
– Secondary <ul style="list-style-type: none"> ○ live forums 	BN
Graduate Students	
– Priority <ul style="list-style-type: none"> ○ Implement a graduate student seminar series 	NV

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

<i>Tasks</i>	<i>Individuals</i>
Actively encourage talented staff and graduate students (core)	
– Priority <ul style="list-style-type: none"> ○ Train Monica Woods, new Managing Director 	TW and MW

- Continue to recruit quality graduate students for research and data work.

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

<i>Tasks</i>	<i>Individuals</i>
Seek partners and funding opportunities for collaboration (core)	
<ul style="list-style-type: none"> – Priority <ul style="list-style-type: none"> ○ Implement collaboration with Joe Francois to undertake projects with the European Commission ○ Reunion Project (Sydney Univ, WIOD, EXIPOL and IDE-JETRO) ○ Continue to collaborate on Energy and environmental data and research ○ Collaborate with UNECA, World Bank and AGRODEP on African data 	<p>Everyone</p> <p>TW</p>
Develop a marketing plan for the Center and GTAP	
<ul style="list-style-type: none"> – Priority: <ul style="list-style-type: none"> ○ Potential board members, Purdue, Graduate students etc 	<p>MW</p> <p>TH and TW</p>

IV. The GTAP Data Base and Other Data Projects: Progress and Future Objectives

In this section we concentrate on the primary product of the GTAP network – the GTAP Data Base. In the first sub-section, we outline the progress made in the last year towards the GTAP 8 Data Base. In the second subsection, the timetable and priorities for finalizing the GTAP 8 Data Base are discussed. Finally, we summarize the situation regarding the other data activities being undertaken by the network.

The GTAP 8 Data Base: Review of Progress

An overview of the evolution of the GTAP Data Base is provided on the website:

<http://www.gtap.agecon.purdue.edu/about/history.asp#db>

In October 2010, the first pre-release of the GTAP 8 Data Base was made available to the GTAP advisory board; this was followed by the second pre-release in April 2011.

A key feature of the GTAP 8 Data Base is that for the first time in the history of GTAP Data Base, we have two reference years: 2004 and 2007. This move towards two base years is in response to an increase in the number of inquiries about using different versions of the GTAP Data Base together as a type of time series dataset. Unfortunately, comparison across versions is difficult due to the sometimes substantial changes in the methodologies used to construct each version. By building a GTAP 8 Data Bases with two base years we can overcome these issues as the data processing are consistent and therefore comparable across years. The two datasets representing the two base years in the GTAP 8 Data Base are both valued in current US Dollars of their respective years.

Below we discuss the progress made on the GTAP 8 Data Base.

Summarizing Current Data Inputs into the GTAP 8p2 Data Base

Data	2004	2007
Macro Data	The 2004 GTAP 7 macro data has been updated with the latest estimates from the World Bank's WDI dataset (GDP and its components), the IMF's financial statistics (government expenditure) and UN/national sources where required by Zekarias Hussein and Angel Aguiar.	New 2007 macro data was obtained from the World Bank's WDI dataset (GDP and its components), the IMF's financial statistics (government expenditure) and UN/national sources where required by Zekarias Hussein and Angel Aguiar.
Trade Data	GTAP 7 inputs from Mark Gehlhar used.	New 2007 data obtained from Mark Gehlhar using UN COMTRADE data.
Tariff Data	GTAP 7 inputs from David Laborde (CEPII and IFPRI) were used.	New tariff data contributed by Houssein Boumellassa (CEPII) in conjunction with Mondher Mimouni (ITC-Geneva). The data is based on the ITC-CEPII MacMAP Data Base for 241 exporting countries (partners) and 221 importing countries (reporters).
Energy Data	GTAP 7 inputs from Robert McDougall and Angel Aguiar were used, with some new improvements	New data and improvements made by Jevgenijs Steinbuks and Robert McDougall.

	to module and data undertaken by Jevgenijs Steinbuks and Robert McDougall.	<p>1) Energy Volumes Data from IEA Energy Balances.</p> <p>2) Energy Price and Tax Data from:</p> <ul style="list-style-type: none"> a) IEA Energy Prices & Taxes b) OLADE Price Data for Latin America c) Ad hoc Price Data for China, Mozambique obtained <p>3) Energy Import & Export Cost Data from IEA Prices & Taxes</p>
Domestic Support data	<p>Hsin Huang (OECD) contributed new domestic support data for both 2004 and 2007 for the OECD member countries other than the EU.</p> <p>For 2004 EU-25 domestic support data contributed by Hans Jensen for the GTAP 7.1 Data Base were used.</p> <p>We have retained the treatment introduced in GTAP 7 Data Base to derive activity-specific payments from activity-generic, group-generic and activity specific payments.</p> <p>For the OECD non-member economies that include Bulgaria, Romania, South Africa, Brazil, Russia, Ukraine and China in 2004, we use GTAP 7 Data Base inputs from OECD.</p>	<p>Hans Jensen contributed new domestic support data for EU-27 for the year 2007.</p> <p>For 2007, we have data for Bulgaria and Romania included in EU-27 dataset, while we do not yet have the domestic support data for other non-member economies.</p>
Agricultural Production Targeting:	<p>Zekarias Hussein processed the contributed I-O tables to target the agricultural production data from Hsin Huang and Hans Jensen for OECD and EU. All the twelve GTAP agricultural sectors are included in this exercise, as was done in GTAP 7 Data Base.</p> <p>For 2004, this was done for the OECD countries other than the EU-27.</p>	<p>For 2007, this was done for all OECD countries including the EU-27.</p>
Export-tax equivalents of MFA quotas	<p>GTAP 7 Inputs used. Joseph Francois and Julia Wortz contributed the Export Tax Equivalents (ETEs) of MFA (Multi-Fiber Arrangement) Quotas in GTAP 7 Data Base.</p>	<p>Given the phasing out of these quotas by 2005, these taxes were zeroed out for most countries' textile and apparel sectors in the 2007 version of GTAP 8 Data Base.</p> <p>China was the only exception. China still faces some quotas from USA and EU. According to BBC and New York Times news reports in late 2005, quotas increased from 2005 to 2007 at the rates of 7.5% and 10% respectively by USA and EU. Export tax equivalents were assumed to decline through 2007 to the extent to which quotas were increased. In other words, we assumed that the ETEs and quotas change by the same</p>

	percentage but in the opposite directions ³ .
I-O Tables	<p>Revised Philippines I-O table, contributed by Erwin Corong for the year 2000.</p> <p>A new I-O table for Kuwait was contributed by David Green for the year 2005.</p> <p>Revised Venezuelan I-O table was contributed by Jorge Luis Hernandez and Roberto Ferrer for the year 1997.</p> <p>Angel Aguiar also revised the dwellings sector in all the EU-27 I-O tables following discussions with the contributors and other experts on the EU. Previously the dwellings sector had been incorrectly mapped to “Other Business services”.</p>

Other Improvements made in the construction of the GTAP Data Base

Food production taxes:

In the previous releases of GTAP Data Base, production taxes in the non-agricultural food sectors from the I-O tables were zeroed out for the countries that have agricultural domestic support data from the OECD or Eurostat. This was because there was international domestic support data for these food sectors in the initial versions of GTAP Data Base. Given that there is no such data now used in the database construction, this treatment is obsolete. Badri Narayanan modified the data construction programs to retain the taxes from the contributed I-O tables.

Energy commodity taxes:

Some of the I-O table contributors report the production and commodity taxes clubbed together as production taxes, particularly in the energy sectors. This issue has been addressed in the GTAP 8 Data Base pre-releases by overriding these taxes with the detailed energy tax data from international sources such as IEA. In this process, potentially genuine taxes from the I-O tables may have been overridden in GTAP 7 Data Base. To address this issue, Angel Aguiar identified a list of countries that suffer from this limitation, by preparing a list of I-O tables with almost zero commodity taxes and non-zero production taxes and then communicating with the contributors. In the current release, replacement of I-O table taxes by our energy dataset is done only for the countries that absolutely need this treatment.

Representative I-O table

The representative I-O table is a key input into the construction of the GTAP Data Base. It is used to disaggregate non-agricultural sectors in any aggregated contributed I-O tables. The representative table was updated to include new fully disaggregated I-O tables from the GTAP 7 Data Base. The representative table in the GTAP 8 Data Base represents a typical country and is created from 23 disaggregated contributed I-O tables. Suggestions have been made that we make two representative tables – one for developing and one for developed countries. As yet this has not been investigated. We have some reservations given the lack of disaggregated developing country tables that could be used to make a representative table for developing countries. We would like to be able to have a separate representative table for developing countries in the future, however this will depend on the quality of underlying data.

Revisions to GTAP Country Classification:

The standard GTAP country list was updated from 226 to 244 countries and a new composite GTAP region (Rest of the World XTW) was added. The standard country list now includes all ISO countries that existed in 2004 and 2007. The list of new countries and regions and their mappings is available from the

³ This will be updated using official data from the text of China’s agreements with US and the EU in the final release of version 8.

following link: <https://www.gtap.agecon.purdue.edu/databases/regions.asp?Version=8.121>. Further details can also be found in Appendix 2.

Ensuring Quality: Comparisons, Reviews and Issues

The Center is increasingly undertaking comparisons of the data. Such comparisons not only provide interesting insights into how the world has changed over time, but have proven to be extremely useful in tracking down changes in the data resulting from revisions by data suppliers and errors in our own data handling. The Center now completes a number of data comparisons and reviews in an effort to improve quality, including:

a) *Comparisons of different versions of the GTAP Data Base*

As a result of this comparison it was found that these two versions have notably different data for the same year, 2004, although the only differences in inputs have been in macro and government expenditure data and representative I-O table. This strengthens the case for updating data inputs and methodologies in order to ensure cross-year comparability. Various issues with the macro data were also found and fixed quickly as a result of comparisons made in-house. These comparisons are placed on the board website along with other issues raised on each version released. The version 8 issues page contains a detailed report comparing the GTAP 7.1 Data Base with the GTAP 8p1 Data Base.

https://www.gtap.agecon.purdue.edu/access_board/GTAP8.asp#issues

b) *Comparisons of macro datasets*

Comparisons are made between different versions of the trade, protection and macro datasets contributed to different versions of the GTAP Data Base.

c) *Comparisons of I-O tables*

I-O tables are compared with the representative table and with previous contributions. Contributors may also request comparisons with other countries. These comparisons are placed on the website with the other I-O reports at:

https://www.gtap.agecon.purdue.edu/access_board/IO/default.asp.

Angel Aguiar also began a trial run of the I-O Table peer-review process this year. Two countries already included in the GTAP 7 Data Base, Spain and Russia, were reviewed by two network members. The reviewers were granted access to all of the original data files and GTAP I-O report, which includes the Center's in-house checks. The reviewers were given two months for the review and their final reviews will be placed on the website along with the other country reports.

Although the review itself was successful in giving us additional valuable information on the quality of the table which were then forwarded to the original contributor, the review process itself took considerable time which would not normally be available during a hectic release schedule. In addition, the documentation usually comes at a later stage of the I-O contribution process and without this a good review is almost impossible. Due to these timing issues, we

envisage that future peer-reviews will take place after inclusion in the GTAP Data Base. As a result they will not be undertaken as part of the normal acceptance/rejection checks, but will be used as a way of identifying what aspects of the tables could be improved in the next contribution.

As issues are raised with the pre-releases they are posted on the website at https://www.gtap.agecon.purdue.edu/access_board/GTAP8.asp#issues.

Agricultural production targeting and domestic support is an area which interests a lot of board members and has raised a number of concerns in pre-releases 1 and 2. Further improvements are expected in pre-release 3, in response to concerns raised by Martina Brockmeier and Hans Jensen. We'd like to thank Hans Jensen, Hsin Huang and Martina Brockmeier for their assistance in improving these data.

One issue which has been raised which has caused some controversy is an observation made by Wally Tyner. He observed that land payments (called direct payments in USA and *paiement compensatoire* in the EU) are a part of OTP and need to be allocated separately to land alone, not across the factors as is being done now. However, Hsin Huang argues that doing this would involve some judgment on the economic impact of particular programs, which is not good for the neutrality of the data base. This issue is currently under discussion among the domestic support data contributors (Hans Jensen and Hsin Huang) and the center staff, however given that this is a one off change based on judgment we do not anticipate implementing these changes.

We would like to strongly encourage board members to continue to undertake their own reviews and let us know if they see issues.

The GTAP Data Base: The Way Forward

Under the current schedule, we are hoping to release the final data to the Board by September, 2011. Before the Board Meeting, we will have the third pre-release with energy data, services data, improved dwellings data, agricultural export subsidies and revised domestic support. This will be the penultimate release as the final release to the Board, which would include all other aspects such as changes in tax treatment, elasticity parameters, time-series trade data, elasticity parameters and new labor splits, will be done by September, 2011, so that the public release may be done by the end of this year.

In the GTAP 8 Data Base cycle, the move to multiple base years is likely to be very valuable to our network members. We'd like to thank all our contributors for helping to make this possible. The following is a list of the key areas where progress is expected over the next few months in order to finalize version 8.

I-O Tables

We are currently working on including some new I-O tables such as United Arab Emirates and revising some of the older ones such as India, Australia and the Philippines. We also plan to include some of the African I-O tables that were contributed to the GTAP Africa Data Base, such as Cameroon, Ghana, Kenya, and Cote d'Ivoire. There is also potential for obtaining new I-O tables from other African countries from the participants of the Africa I-O contributor course that was held in Addis Ababa in April 2011.

In his interactions with contributors, Angel Aguiar has increasingly been working with the fully disaggregated I-O tables. We will start collecting these disaggregated tables to capture more detail for possible future use. In addition, we will look into ways to facilitate the contribution of GTAP I-O tables starting from a supply and use table. This has become important as SNA08 only requires that countries produce supply and use tables, not I-O tables, and I-O tables are a necessary first step in the development

of I-O tables. Moreover, there are additional benefits from using supply and use tables as they must be compatible with the country's macro data.

Basic information about I-O tables included in the GTAP Data Base is usually presented on the website and in the Annual report on I-O tables produced for the board meeting. This data has also been included in a header array file and will be included as part of GTAPAgg in the next pre-release of the GTAP 8 Data Base. The user will then be able to view some of the details about the country/ies they are interested in by quickly looking at the relevant header in the database. If this raises concerns then they would then be referred to the website for more details. Information in these headers includes the version each country was originally contributed to, the total number of sectors in the original table (number of agricultural sectors, food processing and manufacturing sectors) and the reference year of the original table.

Finally, with the release of ISIC revision 4 and CPC version 2, Angel Aguiar has also spent some time updating the concordances in GTAP Technical Paper #1. An updated version of this paper will be available for new tables entering the GTAP 9 Data Base. Over the next year, Angel will interact with macro data contributors, including Mark Gehlhar, to ensure these concordances are consistent with the trade data.

Protection Data

Considerable improvements have been made on the protection data over the last few GTAP versions with the production of the MACMaps dataset by ITC-Geneva, including the collaboration between ITC-Geneva and CEPII in making this dataset available to the GTAP Data Base and the further collaborations between IFPRI with Monash University in the production of TASTE. We hope that we can continue to offer the GTAP community state-of-the-art protection data which are fully integrated into the global GTAP Data Base, as well as synchronized with the TASTE software for conducting HS-6 level policy experiments. Sébastien Jean has been instrumental in ensuring that these collaborations have continued over the years. As a part of the 2011 board meeting we will hear from Mondher Mimouni (ITC-Geneva), Sébastien Jean (CEPII) and Davis Laborde (IFPRI) on recent progress.

Export Subsidies

David Laborde has kindly agreed to contribute agricultural export subsidies for GTAP 8 Data Base by May 2011. For the current version, he expects to contribute export subsidies net of taxes, whereas previously we only had data on subsidies.

The Protection and Taxes Data Construction Modules

The Center has made significant progress in revising the protection and taxes data construction modules outlined in the 2010 Issues document. In particular, we have fixed some of the known errors, and improved ease of maintenance, by removing the sub-modular structure and updating to current best practice for programs. Non-agricultural food output subsidy rates from the I-O tables, which were removed in the old protection module, are now being retained as a result of the improvements in the module. Handling of domestic support has also been rationalized to ensure that its input is fed into protection module. Retaining the taxes on intermediate usage and tariffs on zero trade flows will be done in the final release to the board. There are a few other and much more complex issues related to handling of travelers' expenditure, which we also hope to address, although this may not be completed during the version 8 cycle.

Energy Data

A number of revisions and updates have been made to the energy data and module by Jevgenijs Steinbuks and Robert McDougall. Jevgenijs Steinbuks joined the Center to work on externally-funded environmental research projects, but has been very helpful in assisting us with this data. More work is still

to be done to improve the energy data and Robert McDougall and Jevgenijs Steinbuks plan to continue this work next year.

Nico van Leeuwen has improved the treatment of energy volumes data for international marine bunkers. This improvement will also be incorporated in GTAP 8 Data Base. Research memorandum number 20, by Robert McDougall and Nico van Leeuwen, discusses this issue.

Services Trade Data

Nico van Leeuwen contributed the services trade data input in January 2011. Robert McDougall is currently processing it for inclusion in the upcoming pre-release of the data base in May 2011.

Skill shares

Nico van Leeuwen and Robert McDougall have provided feedback on the preliminary skill splits dataset from the USITC. Unfortunately we have not obtained a revised version of the skills data. At this stage it is unlikely that the Center will be able to process the skills data in time for the final release, hence we expect the skills data will be included in an interim release (GTAP 8.1 Data Base).

In April, Center staff also held discussions with a group called Social Hotspots. This group has been working on the skills data to estimate wages. It is hoped that collaboration with this group, might help us obtain additional data that could assist us in filling missing data in the USITC skills dataset.

Domestic Support

In April 2011, Martina Brockmeier and team reported an issue in the treatment of domestic support database in GTAP 8p2 Data Base. OECD domestic support data distinguishes decoupled payments to the factors and intermediate inputs from the activity-specific payments, to avoid unrealistically heterogeneous changes in the output in different sectors during a simulation that removes all payments. While incorporating this in the database, fully decoupled support payments called Other Transfer Payments (OTP) were allocated to sectors in a manner that equalized the power of the support across factors within a sector, but, these powers were allowed to vary across sectors. This has the unfortunate effect of causing strong changes in factor allocations when support was removed. As a proposed solution during the upcoming pre-release, instead of equalizing the rates merely across the factors within each sector, we could equalize OTP across all sectors and factors.

Dwellings

As discussed in the I-O table report last year, the share of dwellings (*dwe*) in total production in a number of I-O tables is equal to zero or very small. Angel Aguiar has investigated the issue and is now working with Robert McDougall to develop a solution to the problem. This will be implemented in the final version of the GTAP 8 Data Base.

Other Data Related Activities: Progress and Priorities

GTAP Africa Project

This year the UNECA hosted a course in Addis Ababa, Ethiopia to train 23 African economists in the GTAP model. We also conducted an I-O course to train 10 of these economists in contributing I-O tables. The UNECA was also able to provide most of the participants with full funding, and the World Bank funded a further 3 participants.

The GTAP Africa Data Base, based on the GTAP 6 Data Base, was publicly released in December 2008. It includes data for 39 regions (30 African regions and 9 other aggregated regions) and the 57 sectors of the GTAP Data Base. As of May 05, 2011, 208 individuals have downloaded the GTAP Africa Data Base.

<http://www.gtap.agecon.purdue.edu/databases/Africa/default.asp>

During the 2010 Board meeting, we circulated a proposal on a potential second phase of this project. A revised version of this proposal was accepted by the World Bank under the Poverty Reduction and Economic Management (PREM) network's area of Growth and Equity: Quantitative Analysis of Vulnerability Reduction and Diversification in Africa. In this project, ten more African economists will receive training over the web on the GTAP model and contributing I-O tables. African economists will then be invited to contribute I-O tables to a new version of the African GTAP Data Base and six will be invited to work on papers as part of a mentoring program. We also plan to extend the standard GTAP model to build a more detailed and comprehensive model that mimics African economies more realistically. There will be a meeting in Venice amongst those interested in assisting with the African data.

During the course in Addis hosted by the UNECA, Terrie Walmsley and Scott McDonald also met with Stephen Karingi (UNECA Board representative) and Greg Gong (African Center for Statistics, UNECA) to discuss ways in which the Center could engage more closely with African statistical offices to help improve the African data in GTAP. Over the next year we hope to put together a proposal to do this.

We are also currently involved in efforts to develop an African modeling network (AGRODEP), which is being led by Antoine Bouet at IFPRI, and involves David Laborde and Betina Dimaranan (IFPRI).

Baseline

There was considerable interest by Janine Pelikan (FAL) and our other European board members at the last board meeting in improving and sharing baseline materials. In addition, the USITC and the Centre of Policy Studies at Monash University, Australia hosted a workshop on baselines in Shanghai just after the conference in Malaysia last year. As a result of this interest, Thomas Chappuis and Terrie Walmsley have been working on surveying and pulling together materials for baselines. We hope to develop a website to share baseline materials, including data and programs, as well as put together a number of papers documenting how to create a baseline for the GDyn model.

Multi-Regional Input-Output (MRIO) Tables and Time-Series Datasets

Zhi Wang and Bill Powers (USITC) visited the Center in October 2010 and presented their work on IRIOs and time-series database for global trade, production and consumption linkages. Zhi Wang has been interested in working on IRIOs using the GTAP Data Base. The Center hopes to work with Zhi Wang on this issue, if a graduate student can be found.

Terrie Walmsley has also been actively involved in dialogue with a group working on world MRIO datasets, including EXIPOL, WIOD and IDE-JETRO. The group met in Reunion in March to discuss ways in which they could collaborate. The project, nicknamed the Reunion Project, is interested in comparing methodologies and looking for ways to collaborate on future projects. Joseph Francois is also working with the WIOD group on the extent to which goods trade is for intermediate and final demand, and on improving the services trade data. Progress in this area will be discussed at the board meeting.

Satellite Data and Utilities

Currently, satellite datasets are independent of the GTAP Data Base construction process, due to the fact that they have been reliant on special projects. While there seemed to be a great deal of interest among board members at the last meeting, to work together to find ways to assist us, unfortunately we are still in the same position as last year. If these satellite datasets are to be updated on a continuous basis, the center will need assistance from contributors to update the data.

There is a proposal, nicknamed GEOSHARE that Thomas Hertel will discuss at the board meeting which offers a means by which the satellite datasets related to land use could be updated. As part of the GTAP 8 Data Base release process, the Center will begin soliciting inputs and programs for the satellite datasets. If you are interested in contributing please let us know. Further details on the proposed GEOSHARE project “A Global, Spatially-Explicit, Open-Source Data Base for Analysis of Agriculture, Forestry, and the Environment” are available at:

<http://www.agecon.purdue.edu/foresight/>

Global FDI Data

The global bilateral multi-region multi-sector foreign direct investment (FDI) stocks and flows database developed by Houssein Boumellassa, Christophe Gouel and David Laborde from CEPII (Centre d'Etudes Prospectives et d'Informations Internationales) as a result of a project initiated by DG Trade of the European Commission has now been finalized and is available on the GTAP website. This database is fully consistent, balanced and suitable for use in CGE work. These data can be found on the website at:

https://www.gtap.agecon.purdue.edu/resources/free_resources.asp

Time as a Barrier

David Hummels' is currently making further improvements to the time to trade estimates. These are still expected to be made available as part of the Satellite Data and Utilities with the assistance of Peter Minor.

Global trade by mode of transport

In collaboration with several current and former students, David Hummels improved estimates of the mode of international shipment of goods by commodity and bilateral route. David Hummels and Nelson Villoria will be working with a graduate student to incorporate this into the GTAP data base in the future.

Intra-Institutional Data

Yontem Sonmez visited the Center for Global Trade Analysis at the University of Melbourne this year to work with Terrie Walmsley on augmenting the GTAP Data Base with intra-institutional data. We hope to make this data available to the GTAP network. Yontem Sonmez will present this work at the GTAP conference in Venice.

V. Research: Progress and Future Objectives

Research Goal: To actively participate in quantitative economic analysis of pressing global concern in the areas of: Trade and Development and Global Energy and Environmental issues.

Trade and Development

Trade and development continue to offer important opportunities for the Center in terms of research and data base development. The number of research challenges in the area of trade and development continues to grow. The Center is actively involved in research in trade policy, poverty and migration, and several models and model extensions have been further developed this year in these areas.

Trade Policy

The book documenting the GDyn model is expected to be published in January 2012. The Center continues to work on applications and extensions of the GDyn Model and development of the baseline.

Badri Narayanan will present a paper on the impacts of tariff escalation on export shares in the global cotton and coffee markets, based on an extension of the standard GTAP model and database using tools like splitcom and TASTE, at the 2011 AAEA Meetings at Pittsburgh, USA. His co-author, Sangeeta Khorana, will present another joint work on the impacts of EU-India FTA on textiles and apparel sector at the 14th Annual Conference in Venice.

The PE-GE framework developed by Badri Narayanan and Thomas Hertel was also documented in a GTAP technical paper. Further research using this framework is expected in the next year.

We are currently looking for graduate students who are interested in working on incorporating heterogeneous firms into the GTAP model and on work related to services trade and non-tariff barriers.

Poverty

Increasingly GTAP network members are seeking to understand the distributional implications of global policies. There are many approaches to tackling this issue, and most are best done in a national modeling framework. However, there are times when a global perspective is needed. One such example is offered by the work seeking to assess the poverty impacts of WTO agreements (e.g., Hertel et al., 2009). In attempting to assess the poverty impacts of a policy across a wide range of countries, a simpler approach is required. In the forthcoming GTAP-POV Technical Paper authored by Hertel, Verma, Ivanic and Rios, the authors describe step-by-step how to build a poverty module for an individual country. The Center stands ready to work with individual contributors who wish to contribute a country-poverty module to GTAP so that they can become operational with the poverty-extended version of the global GTAP model. We hope that over time we will build up a library of countries for which poverty analysis can be conducted. We believe that it is possible to do this for 40 or more developing countries. This would permit users to speak to the poverty impacts of trade and environmental policies at a global scale. This module has recently been applied to analysis of the poverty impacts of trade reforms, as well as the poverty impacts of climate change. Examining poverty issues is also expected to continue to be an important part of the Center's research as more work is done in Africa.

Migration and Labor

Terrie Walmsley and Angel Aguiar recently completed work on developing a dynamic model of migration which has been used to examine the impact of migration within Asia and between Mexico and the USA. Terrie Walmsley also recently completed a time series data base on bilateral migration by gender with Chris Parsons, Caglar Ozden and Maurice Schiff.

Badri Narayanan, along with Terrie Walmsley, has been working on an extension of GTAP Data Base and model to analyze the impacts of a ban on child labor on global welfare and international trade. This will be presented in the Venice Conference.

Badri Narayanan, Tasneem Mirza and Nico van Leeuwen are working on the issue of US labor market impacts of growth and trade liberalization in China, using a special ILO-based dataset on five labor categories developed by USITC. Tasneem Mirza presented the preliminary findings from this work in the 2010 GTAP-Penang Conference.

Below is a list of papers in this area that have emerged from the Center recently in the area of trade and development:

Aguiar, A. and T. Walmsley, “Analysis of U.S. Immigration Policy Reforms using a General Equilibrium Model” Sent to Applied Economics.

Ahmed, S.A., T.W. Hertel, and T.L. Walmsley (2011) “Outsourcing and the US Labour Market”, World Economy 34(2):173-329

Chappuis Thomas and Terrie Walmsley, “An updated global baseline for the Dynamic GTAP model”, to be presented at the 2011 conference on Global Economic Analysis, Venice, June 16-18.

Hertel, T.W., 2011. “Alan Deardorff’s Contributions to Computational Analysis of International Trade”, in Comparative Advantage, Economic Growth, and the Gains from Trade and Globalization: A Festschrift in Honor of Alan V. Deardorff, edited by Robert Stern, University of Michigan Press.

Hertel, T. W. and R. Keeney (2010). “Poverty Impacts in 15 Countries: The GTAP Model”, Chapter 4 (pp. 119-144) in K. Anderson, J. Cockburn and W. Martin (eds), Agricultural Price Distortions, Inequality and Poverty, Washington, DC: The World Bank.

Hertel, T., W. Martin and A. Leister (2010) “Potential Implications of the Special Safeguard Mechanism (SSM): The Case of Wheat”, World Bank Economic Review.

Ianchovichina, E.; and Walmsley, T. L., (eds): *Dynamic Modeling and Applications in Global Economic Analysis*, To be published by Cambridge University Press, expected Jan 2012

Lakatos, Csilla and Terrie Walmsley, “Dispute Settlement at the WTO: Impacts of a No Deal in the US-Brazil Cotton Dispute”, sent to World Trade Review.

Lakatos, Csilla and Terrie Walmsley, “Investment Creation and Diversion Effects of the ASEAN-China Free Trade Agreement”, sent to Economic Modelling.

Narayanan, Badri G. and Pankaj Vashisht (2011). “Impact of Foreign Investment on Indian Auto Industry”, in eds. Shahid Ashraf and Shahid Ahmed. *Regional and Multilateral Trade in Developing Countries*, Routledge India, London. pp 294-323

Narayanan, G. Badri (2011), *Book Review on “The Political Economy of Work by David Spencer”*, *Journal of Economic Issues*, 45(1): 254-5.

Narayanan, G. Badri., Hertel, Thomas W. and Horridge, J. Mark (2010). “Disaggregated Data and Trade Policy Analysis: The Value of Linking Partial and General Equilibrium Models”, *Economic Modelling*, 27(3): 755-66.

Narayanan, Badri G. Thomas W. Hertel and Mark Horridge (2010). “Linking Partial and General Equilibrium Models: A GTAP Application using TASTE”, *GTAP Technical Paper No: 29*, Center for Global Trade Analysis, Purdue University, USA.

- Narayanan, G.Badri (2010). “Long-run Relationship between Output, Capital, Labour and Productivity: Evidence from Indian Textile Sector”, *Applied Economics*, 42(6): 759-68
- Özden, C.; Parsons, C.; Schiff, M.; and Walmsley, T. L., “The Evolution of Global Bilateral Migration 1960-2000”, *Special edition of World Bank Economic Review, expected May 2011*
- Preckel, P.V., J.A.L. Cranfield and T. W. Hertel, (2010). “A Modified, Implicit Directly Additive Demand System”, *Applied Economics*, 42(2):143-155.
- Reimer, J.J. and T.W. Hertel, 2010. “Non-Homothetic Demands and the Factor Content of Trade,” *The Review of International Economics* 18(2):408-425.
- Sonmez, Y., S. R. McDonald and T. L. Walmsley, 2011: "Augmenting GTAP Database: Are the data on intra institutional transactions important?", to be presented at the 14th Annual Conference on Global Economic Analysis, Venice, Italy, June 16-18.
- Strutt, A., T. W. Hertel and S. Stone (2010). “Exploring Poverty Impacts of ASEAN Trade Liberalization for Cambodia, Lao PDR, Thailand and Vietnam”, Chapter 8 (pp. 217-245) in J. Gilbert (ed.), *Frontiers of Economics and Globalization Vol. 7*, Emerald Publishing.
- Verma, M., T.W Hertel and E. Valenzuela (2011). “Are the Poverty Impacts of Trade Reforms Invisible?”, forthcoming in *World Bank Economic Review*.
- Walmsley, T. L., L. A. Winters and S. A. Ahmed, “Measuring the Impact of the Movement of Labour Using a Model of Bilateral Migration Flows”, submitted to *Global Economy Journal*.
- Zhai, F. and T. W. Hertel (2010). “China”, Chapter 5 (pp. 147-178) in K. Anderson, J. Cockburn and W. Martin (eds), *Agricultural Price Distortions, Inequality and Poverty*, Washington, DC: The World Bank.
- Walmsley, T. L., A. Aguiar and S. A. Ahmed “Labour Migration and Economic Growth in East and South-East Asia” in A. Ahsan (ed), *International Migration and Development in East Asia*. World Bank.

Global Energy and Environmental issues

From the point of view of the Center’s research agenda, “Energy and the Environment” (E&E) refers to research into global environmental issues with significant trade dimensions. Currently this encompasses policies related to climate change impacts, climate change mitigation, as well as biofuels policies and their implications for global trade, land use emissions and economic welfare. These are broad topics, and many in the network are working in these areas. The Center’s current research agenda emphasizes the land use, agriculture, forestry, and poverty dimensions of these policies. Agriculture, forestry and associated land use change currently account for about 30% of global greenhouse gas emissions, and, in theory, could supply up to 50% of economically efficient abatement globally, in the near term, at modest carbon prices. However, these sectors have been relatively neglected in the bulk of the CGE-based studies of climate policy. Therefore, this area of climate policy has become a focal point for the Center’s research in climate mitigation policy.

Early work in this area was sponsored by the US Environmental Protection Agency (EPA) and is documented in the 2009 volume edited by Hertel, Rose and Tol titled *Economic Analysis of Land Use in Global Climate Change Policy*. Part of the EPA project involved the development of global land use and non-CO2 emissions data bases, which have subsequently been widely used by the GTAP community. Unfortunately, as is often the case, these data bases were a ‘one-off’ effort, documenting land use and emissions in the circa 2001 (the base year for GTAP version 6). In response to strong interest by GTAP consortium members, we allocated two graduate students (Uris Baldos and Misak Avetisyan) to the job of updating these two data bases to 2004 (v.7) and these data are now available to consortium members and

data base subscribers via the web site. Further updates of these satellite data bases will likely hinge on support from consortium members and other institutions interested in supporting work in this area. They represent fundamental data base infrastructure that must be supported if model-based policy analysis is to prove credible. At the upcoming Board meeting, Tom Hertel will report on the proposed GEOSHARE project which aims at developing global land use data for agriculture and forestry which could help in continuously updating the GTAP land use data base. However, the non-CO2 emissions data base update is something that must be led by a major player in the field (US-EPA did so the last time). This may merit some discussion at the Board meeting.

Recent climate policy research in the Center has placed special emphasis on abatement possibilities in the livestock sector. This work is being funded by the Livestock Policy group within the UN-FAO and several papers are emerging from that project (see below). The US Electric Power Research Institute (EPRI) has recently funded two projects with the Center in the climate policy area as well. The EPRI projects are focusing on several issues, including: transactions costs and risk associated with agricultural offsets, the interplay between bioenergy policy and climate policy, as well as global land use and the agricultural impacts of REDD policies.

Energy and environmental policies have important dynamic dimensions which are better suited for analysis using a dynamic model. There are now many different dynamic CGE models running on versions of the GTAP data base. However, we believe that it is important that there be a standard dynamic GTAP model which is oriented towards energy/environment applications (akin to the GTAP-E static model). Fortunately, the US Department of Energy has supported development of such a model: G-DynE. A paper using G-DynE to assess the global impacts of a simple climate policy scenario will be presented at the Conference in Venice. In a parallel development, the US-EPA is supporting the Center to extend the G-DynE model and improve its representation of land use in order to address issues of biofuels policy. The EPRI project will draw on G-DynE as well. Thus we expect, by this time next year, that there will be a full suite of energy-environment oriented applications available and, as will all the GTAP extensions undertaken at the Center, we plan to make the underlying models publicly available through the GTAP technical paper series.

In addition to these assessments of climate policies, there is a great deal of research into bioenergy and its economy-wide impacts being undertaken in the Center and the Department of Agricultural Economics. Interest in this area has been fueled particularly by the demand for assessments of the global land use and associated emissions impacts of biofuels. Over the past year members of the Center have written several survey papers on this topic and these are listed below, along with other papers assessing particular dimensions of this debate. Current work, funded by USDA, DOE, Argonne National Laboratory (ANL), and California Energy Commission is focusing on the economic and environmental consequences (in particular ILUC) of alternative fuel pathways including second generation biofuels. Wally Tyner and Farzad Taheripour have developed several reports to support ANL and for use in the California Low Carbon Fuel Standard (for example see Tyner et al (2010)). In a recent project Taheripour and Tyner have introduced first and second generations biofuels into the GTAP data base version 7 (see research memorandum 21) and developed a new model which handles production and consumption of advanced biofuels including bio-gasoline from miscanthus and corn stover. A first paper out of this work will be presented at the Venice Conference (see below) and a poster will presented at the 2011 AAEA meeting. The work in this area led us to detect and remove some inconsistencies in the land use data base v7. The GTAP-BIO data base version 7 generated by Taheripour and Tyner will be used in the EPRI project.

In another line of research supported by USDA Tyner, Sarica, and Taheripour are developing a framework to make a soft link between GTAP and the MARKAL energy model. Along this line of research a land supply function is derived from the GTAP-BIO model simulation results and the results are used to introduce biofuels into the MARKAL model. A first paper out of this work will be presented at the Venice Conference (see below).

In addition to the projects mentioned above, USDA and DOE have funded a multi-year project at Purdue aimed at incorporating water into the GTAP model, thereupon assessing the implications of bioenergy for both land and water use, and exploring their interactions. A first paper out of this project will be presented at the Venice conference (see below) and the 2011 AAEA meeting. We anticipate that, in the future, this will result in a supplementary water data base which will complement the work already undertaken in Europe by Richard Tol and his collaborators.

Thus far we have focused on analyses of policies – be they bioenergy, or climate-focused. However, a critical dimension of the climate debate pertains to the impacts of climate change itself. Work in the Center on climate impacts has focused on their impacts on agriculture, which is one of the sectors most exposed to climate. Tom Hertel has been collaborating with the World Bank on a project focused on Tanzania, and this has produced a number of papers that are listed below. Next year, Tom will be on Sabbatical at Stanford University where he will be pursuing research in this area, as well as analyzing issues related to global land and water resources.

Below is a list of papers in this area that have emerged from the Center over the past year:

- Ahmed, S. A., N. Diffenbaugh, T. Hertel, D. Lobell, P. Rowhani, N. Ramankutty and A. R. Rios (2010) “Climate Volatility and Poverty Vulnerability in Tanzania”, Global Environmental Change <http://dx.doi.org/10.1016/j.gloenvcha.2010.10.003>
- Avetisyan, M., A. Golub, T. Hertel, S. Rose and B. Henderson. “Why a global carbon policy could have a dramatic impact on the pattern of the worldwide livestock production”. Under second round of review with Applied Economic Perspectives and Policy.
- Beckman, J., T. W. Hertel, F. Taheripour and W.E. Tyner (forthcoming). “Structural Change in the Biofuels Era”, European Review of Agricultural Economics.
- Beckman, J., T.W. Hertel, and W.E. Tyner (2011). “Validating Energy-Oriented CGE Models”, Energy Economics (forthcoming).
- Beckman, Jayson; Roman Keeney; and Wallace E. Tyner. “Feed Demands and Co-product Substitution in the Biofuels Era.” *Agribusiness* 26 (2010) pp. 1-21.
- Golub, A., B. Henderson, T. Hertel. “Livestock GHG Mitigation: Policies Effectiveness and Food Security”. Paper prepared for the 14th GTAP conference.
- Golub, A., B. Henderson, T. Hertel, S. Rose, M. Avetisyan, and B. Sohngen. “Effects of GHG Mitigation Policies on Livestock Sectors”, GTAP working paper 62, Purdue University, West Lafayette, IN, USA, June 2010.
- Golub, A., B. Henderson, T. Hertel, S. Rose, and B. Sohngen. "Modeling the Heterogeneous Effects of GHG Mitigation Policies on Global Agriculture and Forestry". Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December 13-17, 2010.
- Golub, A., T. Hertel, B. Mignone and K. Sarica. “Analysis of Climate Policies with GDyn-E”. Paper prepared for the 14th GTAP conference.
- Golub, A., T. W. Hertel, F. Taheripour and W. E. Tyner (2010). “Modeling Biofuels in General Equilibrium”, Chapter 6 (pp. 153-187) in J. Gilbert (ed.), Frontiers of Economics and Globalization Vol. 7, Emerald Publishing.
- Hertel, T., W. (2011) “The Global Supply and Demand for Land in 2050: A Perfect Storm?”, American Journal of Agricultural Economics.
- Hertel, T., W. (2011) “The Distributional Impacts of Climate Policy: Discussion”, B.E. Journal of Economic Analysis and Policy (forthcoming).

- Hertel, T. W. and J. Beckman, (2011). “Commodity Price Volatility in the Biofuel Era: An Examination of the Linkage Between Energy and Agricultural Markets”, in *The Intended and Unintended Effects of U.S. Agricultural and Biotechnology Policies*, edited by Joshua Graff Zivin and Jeffrey Perloff, NBER and University of Chicago Press.
- Hertel, T., W., M. B. Burke and D. B. Lobell (2010) “The Poverty Implications of Climate-Induced Crop Yield Changes by 2030”, Global Environmental Change doi:10.1016/j.gloenvcha.2010.07.001.
- Hertel, T., A. Golub, A. Jones, M. O’Hare, R. Plevin and D. Kammen (2010) “Global Land Use and Greenhouse Gas Emissions Impacts of US Maize Ethanol: Estimating Market-Mediated Responses”, BioScience 60(3):223-231.
- Hertel, T., W. and S. Rosch (2010) “Climate Change, Agriculture and Poverty”, Applied Economic Perspectives and Policy 32(3): 355-385-31: doi: 10.1093/aep/ppq016.
- Hertel, T.W., W.E. Tyner and D.K. Birur, (2010). “Global Impacts of Biofuels”, Energy Journal, 31(1):75-100.
- Rose, S., A. Golub, B. Sohngen and T. Hertel. “Agricultural Impacts of Reduced Tropical Deforestation”. Paper prepared for the 14th GTAP conference.
- Taheripour, F., T.W. Hertel and W.E. Tyner (2011). “Implications of the Biofuels Boom for the Global Livestock Industry: A Computable General Equilibrium Analysis” Agricultural Economics [http://doi: 10.1111/j.1574-0862.2010.00517.x](http://doi:10.1111/j.1574-0862.2010.00517.x)
- Taheripour, F., T.W. Hertel and W.E. Tyner, (2010). “Biofuels and their Byproducts”, Biomass and Bioenergy, 34: 278-289 <http://dx.doi.org/10.1016/j.biombioe.2009.10.017>.
- Taheripour, F., T.W. Hertel, J. Liu, (2011). “The Role of Irrigation in Determining the Global Land Use Impacts of Biofuels”, will be presented the 14th GTAP conference and the 2011 AAEA meeting.
- Taheripour, F. and W. Tyner (2011). “Global Land Use Changes and Consequent CO₂ Emissions due to US Cellulosic Biofuel Program: A Preliminary Analysis”, will be presented the 14th GTAP conference and the 2011 AAEA meeting.
- Taheripour, F. and W.E. Tyner, “Introducing First and Second Generation Biofuels into GTAPData Base version 7”, GTAP Research Memorandum No. 21, Department of Agricultural Economics, Purdue University, 2011a.Tyner, Wallace E.; Taheripour, Farzad; Zhuang, Qianlai; Birur; Baldos, Uris. “Land Use Changes and Consequent CO₂ Emissions Due to US Corn Ethanol Production: A Comprehensive Analysis.” Department of Agricultural Economics, Purdue University, July 2010. Report to Argonne National Laboratory. http://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=3288
- Tyner, Wallace E., and Sarica, Kemal. “Analysis of US Renewable Fuels Policies Using a Modified MARKAL Model.” Paper presented at the 14th GTAP Conference, Venice, Italy, 2011.
- Villoria, N. and T.W. Hertel (2011). “Geography Matters: International Trade Patterns and the Indirect Land Use Effects of Biofuels”, American Journal of Agricultural Economics (forthcoming).
- Wang, Michael Q; Jeongwoo Han, Zia Haq; Wallace E. Tyner; May Wu; and Amdad Elgowainy. “Energy and greenhouse gas emission effects of corn and cellulosic ethanol with technology improvements and land use changes.” *Biomass and Bioenergy* 35 (2011), pp. 1885-1896.

VI. The Model, Education and the Network

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

Recent technical papers documenting models and new techniques include the paper documenting the linking of PE-GE models by Badri Narayanan, Thomas Hertel and Mark Horridge and further improvements to the Systematic Sensitivity Analysis undertaken in RunGTAP have been documented by Ken Pearson and Mark Horridge. Currently under review is a paper documenting the poverty module and another paper which measures the impacts of global trade reform with optimal aggregators of distortions. These two papers are important additions to the GTAP technical paper series. Unfortunately we are still waiting on a technical paper documenting the new GTAP-E model, although Alla Golub has done considerable work developing a GDyn-E model and developing programs to create and aggregate the GTAP-E Data Base.

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

The Center continues to re-examine the way in which it educates graduate students, staff, visitors and network members. Unfortunately, with the onset of the financial crisis demand for our short courses has declined this year: it is not clear whether this will continue.

Below is a summary of some of the progress made and future directions in education:

- Internal Training of Staff, graduate students and visitors:
 - Nelson Villoria has now taken a lead role in developing a seminar series for our graduate students.
 - The Center continues to have an active Seminar Series. Further details are available on the website: <http://www.gtap.agecon.purdue.edu/about/seminars.asp>
- Short course:
 - Two courses were held: one at Purdue University in West Lafayette, Indiana USA in August, 2010; and the other in Addis Ababa, Ethiopia in March 2011. Given the decline in applications, it is unlikely we will hold two courses every year.
 - This year, Nelson Villoria will lead the short course at Purdue University in August, 2010.
 - We plan to hold the Dynamic short course in 2012 and the 2013 GTAP short course in Europe.
- For Policy Makers
 - There is some interest in holding a course for policy makers in Geneva following the 2012 Conference. As this is not the strength of the GTAP staff, we would appreciate assistance from any board members interested in developing such a course. If you or your colleagues are interested in assisting us please let us know.
- We continue to include additional materials on the website. Most recently we included a GTAPAgg demonstration for new users on the website.
- As many of you know Monica Woods has recently joined us as managing director. Over the next year she will be putting together a marketing plan for the Center. This plan is expected to include marketing to Purdue, graduate students, potential board members and network members. We would be grateful if you could share any materials you think would help Monica in developing this plan.

VII. Finances, Budgets and Staffing Plan

Budgeting

To be handed out and discussed at the board meeting.

Staffing

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

Current Staffing Plan and New Staff

A number of have staff joined the Center over the last few months:

Jevgenijs Steinbuks joined the Center to work on energy and environmental research projects. He has also been assisting Robert McDougall with the energy data which is helping us address some of the concerns with the energy data.

Monica Woods joined the Center as the Managing director in April, 2011. Monica will manage the Center, work with potential hosts on developing their conference and course proposals, assist staff with their research proposals for funding and develop a marketing plan for the Center and the network.

Monika Verma joined the Center after completing her PhD last year. Monica is working on Poverty and other research projects related to poverty.

Thomas Chappuis joined the Center for a year in November 2010 to assist with the developing a website for sharing and developing baselines.

Csilla Lakatos joined the Center after completing her PhD earlier this year. Csilla is working with the USITC on developing a model and database of foreign affiliates.

At this point in time we have no plans to hire more permanent staff. Instead we are taking the opportunity to hire our graduate students upon completion of their PhD's to assist us with data and research projects.

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 given below. As you can see, many of the Center's staff is externally funded (i.e. not supported by Consortium funds or Data Base sales).

Robert McDougall	100% core	Documentation	Factor Taxes	Services trade data	Assist with protection, dwellings, energy	Utilities	I-O Disagg	Meta-data	Comparison programs	Document GTAP-E Model	Research and Courses
Badri Narayanan	100% core	Oversee release schedule	Website and data documentation	Documentation of construction	Protection data and Module	Trade pre-processing	Satellite data schedule	Live sessions and seminars	Research and Courses		
Angel Aguiar	100% core	Working with I-O Table contributors	I-O Peer Review Process	I-O Table Documentation	I-O Educational materials	African and EU I-O tables	Pre-processing of macro data	Dwellings	I-O Disagg	Agr Production Targeting	Research and Courses
Terrie Walmsley	100% core	MRIO collaborations	Short Course and education plan	Grad student supervision	Conference and board meeting	Skills Data	Africa Project	Satellite data	Training of M. Director	Baseline	Research
Thomas Hertel	25% core	Assist with Conference	Impact of climate mitigation policies	Grad Student Projects	Satellite data	Sabbatical					
Nelson Villoria	50% Projects	Short Course and education plan	Transportation Data	Grad student supervision	Research						
Alla Golub	100% Projects	Dynamic GTAP Model App	Energy and Environ research	Satellite data	Grad student supervision	Document GTAP-E Model	Short Courses				
Jevgenijs Steinbuks	100% Projects	Energy and Environ research	Energy Data	Satellite energy data							
Monika Verma	100% Projects	Poverty projects									
Csilla Lakatos	100% USITC	Foreign affiliates model and data	Other USITC projects								

Thomas Chappuis	100% core until Nov. '11	Baseline									
Graduate Students	Various	Special Projects	Heterogeneous firms	MRIO data	Short Courses	Pre-processing of macro data	Agr Production Targeting	Elasticities	Advalorem v specific tariffs	International transport	Skills data
Monica Woods	100% core	Conference proposals	Board meeting	Marketing plan	Staff evaluation	Course proposals	Assist with Grants	Budgeting			
Meghan Alexander	100% core	Conference logistics	Board meeting logistics	Course logistics	Finances						
Ginger Batta	100% core	Website	Conference Program	Data sales and reporting	Course applications	Conference applications					

VIII. Other Business

Research Fellows

Antoine Bouët will report on the committee's decisions at the Board meeting. The committee includes Antoine Bouët (Committee Chair), Terrie Walmsley and Richard Tol. Meghan Alexander and Ginger Batta provide support in collecting CVs and providing an online forum, respectively. The CVs of the research fellows are included in the supplementary material in your folder and are available on the website at:

http://www.gtap.agecon.purdue.edu/events/Board_Meetings/2010/supp_material.asp

Conference Proposals

Italy 2011

Francesco Bosello and Angela Marigo will welcome us to Venice and present an update on preparations for the 2011 conference at the board meeting. This event is being hosted by the Fondazione Eni Enrico Mattei (FEEM) and the Department of Economics of the Ca' Foscari University of Venice

Geneva 2012

In May 2010, the board approved the final joint proposal from the World Trade Organization, International Trade Centre and UN Conference on Trade and Development (UNCTAD) to host the 15th Annual Conference on Global Economic Analysis in Geneva, Switzerland. This event will take place in late June due to local constraints. Patrick Low and Roberta Piermartini, who are taking the lead on this conference, will give us an update at the board meeting. A copy of the proposal is contained in the supplementary materials on the website at:

https://www.gtap.agecon.purdue.edu/events/Board_Meetings/2011/supp_material.asp

Shanghai 2013

In May 2011, an email was sent to board members requesting feedback on a proposal to hold the conference in Shanghai, China. Conference hosts would be the Shanghai WTO Affairs Consultation Center (SCC/WTO) and the Shanghai Academy of Social Sciences (SASS). Professor Xuejin Zuo, Executive Vice (Acting) President of SASS, will not be able to join us in Venice; Monica Woods will present the proposal for board discussion. A copy of the proposal is contained in the supplementary materials on the website at:

https://www.gtap.agecon.purdue.edu/events/Board_Meetings/2011/supp_material.asp

New Technical Paper, Working Papers and Research Memoranda

New Technical Papers

Linking Partial and General Equilibrium Models: A GTAP Application Using TASTE
by Badri Narayanan, Thomas Hertel and Mark Horridge
GTAP Technical Paper No. 29, 2010

Systematic Sensitivity Analysis with Respect to Correlated Variations in Parameters and Shocks
by Horridge, Mark and Ken Pearson
GTAP Technical Paper No. 30, 2011

New Working Papers

Modeling Biofuels Policies in General Equilibrium: Insights, Pitfalls and Opportunities
by Golub, Alla, Thomas Hertel, Farzad Taheripour and Wally Tyner
GTAP Working Paper No. 61

Effects of GHG Mitigation Policies on Livestock Sectors
by Golub, Alla, Ben Henderson, Thomas Hertel, Steven Rose, Misak Avetisyan and Brent
Sohngen
GTAP Working Paper No. 62

The Global Supply and Demand for Agricultural Land in 2050: A Perfect Storm in the Making?
AAEA Presidential Address
by Hertel, Thomas
GTAP Working Paper No. 63

Research Memoranda

Development of the GTAP Version 7 Land Use Data Base
by Avetisyan, Misak, Uris Baldos and Thomas Hertel
GTAP Research Memorandum No. 19

International Marine Bunkers: An Attempt to Assign its Usage to the Right Countries
by McDougall, Robert and Nico van Leeuwen
GTAP Research Memorandum No. 20

Introducing First and Second Generation Biofuels into GTAP Data Base version 7
by Taheripour, Farzad and Wally Tyner
GTAP Research Memorandum No. 21

Report on GTAP Usage and the GTAP Website

Ginger Batta has undertaken a number of searches to set up a baseline to document the impact of GTAP. Three sources have been examined:

- 1) Econlit: AEA's electronic bibliography of economics literature,
- 2) IDEAS: a freely available, online bibliographic data base dedicated to Economics, and
- 3) Google Scholar: Google's dedicated engine for searching scholarly literature.

The report is provided in the supplementary materials.

The GTAP website report is also contained in the supplementary materials provided on the board website.

IX. Appendices

Appendix 1: List of potential issues for the discussion during the session on “Data Base and Research Issues”

It is unlikely that we will have time to discuss all of these, but this is a list of important issues that have come up over the past year and may be of interest to the board.

Research:

- consumer demand in GTAP
- the GTAP Baseline
- labor migration
- land use data base and modeling
- bio fuels
- trade and development
- poverty analysis
- adjustment costs
- services liberalization and FDI
- Climate change
- the environment

Data:

- energy
- services
- trade
- protection
- taxes
- regional disaggregation
- quality comparisons of inputs
- quality comparisons of the final data base
- factor splits
- TASTE
- Skill splits
- Weighting schemes for protection data
- matching IMF trade totals
- data sourcing
- releasing the data base in GAMS format
- intra-regional trade
- sectoral disaggregation
- Peer-review of I-O tables
- data management issues

- multi-year data bases

Model:

- validation exercises
- parameter estimation
- terms of trade effects in GTAP
- Technical papers
- Dynamic GTAP Model
- GTAP-E Model
- GDyn-E

Education:

- GAMs courses
- Further overseas courses
- Data Base courses
- Web courses
- Courses for policy makers
- Demand for courses

Network:

- pricing policies
- scholarships
- conferences
- board meetings and membership
- Europe
- Regional GTAP Centers
- Open source
- staffing
- marketing GTAP

Appendix 2: Further Details on the Revisions made to GTAP Country Classification

The standard GTAP country list was updated from 226 to 244 countries and a new composite GTAP region (Rest of the World XTW) was added. The list of new countries and regions and their mappings is available from the following link:

<https://www.gtap.agecon.purdue.edu/databases/regions.asp?Version=8.121>.

This was done because the international data contributors for the GTAP Data Base provide various data inputs with their country-classifications, which may include some small ISO countries/territories that are not in the GTAP Data Base. The revision of standard country list has also been in the light of new countries/territories that came into existence before the base years (2004 and 2007). Since there have been no new countries between 2004 and 2007, the GTAP standard country list is identical for both these years. Countries that came into existence after January 2007 have been excluded from the list, since their economic data would not include the whole year.

Some of the new countries are mapped to primary GTAP regions, since they are contained in the contributed input-output tables of those primary regions. Given that Bouvet islands are uninhabited and hence have no GDP, we mapped this territory to Norway. For others, the criterion for mapping to composite regions was their geographical region. Antarctica (ata), Southern Territories (atf) and British Indian Ocean Territory (iot) do not belong to any of the current GTAP geographical regions, so they were mapped to a new composite region named Rest of the World, XTW. The only new countries that have been split from an older GTAP standard country are Serbia (SRB) and Montenegro (MNE), which were parts of a single country (SCG).

With the new country classification, a few minor changes were required in the database construction process. The modal international transportation shares of the new countries are assumed to be the same as the averages of their geographical regions. Energy volumes for the new countries are computed from the averages using their GDP shares. For the countries that have small population but no GDP data (ata, atf and iot), we compute the GDP from their geographical-regional average per-capita income and population. To construct the composite region XTW, we map its constituent countries/territories to the geographical regions that contain the GTAP standard countries that own/administer these territories.