



GTAP Advisory Board Meeting Summary
June 13-14, 2016 Washington, DC, USA

Attendance

GTAP Center: Angel Aguiar, Zeynep Akgul, Uris Lantz Baldos, Ginger Batta, Mary Burfisher, Caitlyn Carrico, Erwin Corong, Thomas Hertel, Roman Keeney, Wendy Kincaid, Jing Liu, Robert McDougall, Badri Narayanan, Dominique van der Mensbrugge

Board Representatives: Anders Aeroe, Heleen Bartelings/Lindsay Shutes, Mohamed Hedi Bchir, Martina Brockmeier, Lucian Cernat, Laurent Cretegny, Jean Fouré/Sébastien Jean, Richard Garbaccio, Paolo Giordano, Mark Horridge, Stephen Karingi, Aikaterini Kavallari, Kenichi Kawasaki, Bob Koopman, David Laborde, Maryla Maliszewska/S. Amer Ahmed, Gopinath Munisamy, Brian O'Neill, Janine Pelikan, Ralf Peters, William Powers, Chris Rasmussen, Bert Saveyn, Frank van Tongeren, James Villafuerte, Niven Winchester, Shinji Yoshioka, Xiao-Guang Zhang

Guests: Andrés Escobar, Alejandro Pardo

A. Summary of Goals and Accomplishments in the Past Year

http://www.gtap.agecon.purdue.edu/events/Board_Meetings/2016/documents/2016_IssuesReport.pdf

B. Summary of Agency Activities in the Past Year

http://www.gtap.agecon.purdue.edu/events/Board_Meetings/2016/default.asp#agencyreports

C. Overview of Broad Goals for the Center

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

D. Overview of Priorities and Responsibilities, by Goal Type

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

| Tasks | Responsibility |
|--|-------------------------------|
| Improving the quality of contributed I-O data (core) | Aguiar |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> Work with contributors to improve I-O tables (EU, US, others) | Aguiar, grad student |
| <ul style="list-style-type: none"> Multi-year Input-Output Tables | Aguiar |
| <i>Secondary Priorities</i> | |
| <ul style="list-style-type: none"> Document the guidelines for contribution of Supply and Use tables | Corong |
| <ul style="list-style-type: none"> Implementation of the dwellings module | McDougall |
| Addition/Improvement of Datasets used in GTAP Data Base (core) | Aguiar |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> Implementation of sector disaggregation | Aguiar, McDougall |
| <ul style="list-style-type: none"> Domestic Margins | Corong, McDougall |
| <ul style="list-style-type: none"> Data and methodological improvements in commodity and income/factor taxes | McDougall |
| <ul style="list-style-type: none"> Export subsidies update | van der Mensbrugge |
| <ul style="list-style-type: none"> Improved Agricultural Production data (FAO and OECD consistent) and AG-IOT | McDougall |
| <ul style="list-style-type: none"> Energy module updates: Better disaggregation of ‘rest of’ regions in IEA and implementation of subsidies | McDougall |
| <i>Secondary Priorities</i> | |
| <ul style="list-style-type: none"> Examine possibility of targeting trade balances | McDougall |
| <ul style="list-style-type: none"> Examine the availability of NSO data (production, etc., by year) to update I-O tables as part of FIT process (when redo FIT) | Aguiar |
| <ul style="list-style-type: none"> Examine integration of biofuels into standard data base | Aguiar, McDougall, Taheripour |
| <ul style="list-style-type: none"> Domestic support, PSE database for Latin America and Africa – MAFAP | van Tongeren, Balié |
| <ul style="list-style-type: none"> Baseline/forecast tool for updates | Resource dependent |
| <ul style="list-style-type: none"> Agricultural Production Targeting | Haqiqi |
| Addition/Improvement of Satellite Data (core) | Aguiar |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> Plan about new satellite datasets (e.g. MRIO) | Carrico |

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

| Tasks | Responsibility |
|---|-----------------|
| Firm Heterogeneity | |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> USITC project to further develop policy application | Akgul |
| Trade and Development | |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> Continue to publish papers on trade, poverty, migration/labor and global supply chains | Staff and Grads |
| Global Energy and Environmental issues | |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> Continue to publish papers on energy and environmental issues with a special focus on the land-water-energy-climate nexus | Staff and Grads |

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

| Tasks | Responsibility |
|---|---------------------|
| Technical and Working Papers | |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> “A facelift for the GTAP model” | van der Mensbrugghe |
| <ul style="list-style-type: none"> “Reconciling additivity with the CES and CET functional forms” | van der Mensbrugghe |
| Software | |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> Software suite for the standard GTAP Model in GAMS: aggregation, filtering, Altertax and comparative static simulations | van der Mensbrugghe |

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

| Tasks | Responsibility |
|---|--|
| Education Plan | Various |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> 2016 GTAP Short Course (Purdue) | Keeney, Batta, Douglas |
| <ul style="list-style-type: none"> GTAP 101 Course(s) | Burfisher, Batta, Douglas |
| <ul style="list-style-type: none"> GTAP PTA Course | Burfisher, Batta, Douglas |
| <ul style="list-style-type: none"> Further investigate development of online mini-courses on special topics | Burfisher, van der Mensbrugghe, Hertel |
| <i>Secondary Priorities</i> | |
| <ul style="list-style-type: none"> Develop and implement an “Alumni Outreach/Continued Learning Initiative” for short course graduates | Keeney, Batta, Douglas |

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

| Tasks | Responsibility |
|---|---|
| Recruitment and Hiring | |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> Career path development | van der Mensbrugghe |
| <ul style="list-style-type: none"> Development of a structured program for mentoring graduate students | Akgul, Carrico, Hertel, van der Mensbrugghe |
| <ul style="list-style-type: none"> Replacement of Badri Narayanan | van der Mensbrugghe |

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

| Tasks | Responsibility |
|---|-----------------------------------|
| GTAP Conferences and Board Meetings | Batta, van der Mensbrugghe |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> 2017 Conference and Board Meeting (West Lafayette, IN, USA) | Batta, van der Mensbrugghe |
| <ul style="list-style-type: none"> 2018 and 2019 Conference Proposals | Batta, van der Mensbrugghe |
| Seek partners/funding opportunities for collaboration (core) | Various |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> IAMC & EMF | van der Mensbrugghe |

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| • AGRODEP | van der Mensbrugge |
| • AgMIP | van der Mensbrugge |
| • ADB | Corong, van der Mensbrugge |
| • Improving services data and modeling | Hertel, van der Mensbrugge, McDougall |
| • Other potential partnerships/collaborations | Hertel, van der Mensbrugge |

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

| Tasks | Responsibility |
|--|--|
| Improve user support system | |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> • GTAP-L, gtapsupport, contactgtap: Continue offering support | Haqiqi, Batta, Douglas, Aguiar, Corong |
| Strategic Communication | |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> • Continue to build upon the 2014 strategic meeting working with Sriramesh Krishnamurthy and his graduate students to document the ‘social network’ provided by GTAP | Hertel |
| <ul style="list-style-type: none"> • Publish second issue of the Journal of Global Economic Analysis | Hertel, Winchester |
| <ul style="list-style-type: none"> • Initiate implementation of a GTAP wiki for data and model | van der Mensbrugge |

E. Summary of Discussions

Following Dominique van der Mensbrugge’s meeting overview, the following items were discussed.

1. The GTAP Data Base: Updates on Core Components

- a. **The GTAP 10 Data Base** - Angel Aguiar presented the status of developments on the GTAP Data Base. First, he summarized version 9’s latest releases: 9a (bug-fix) and 9.1 (Board Members only). Version 9a addressed a processing error related to domestic support data. It also revised capital stock data for selected countries. Version 9.1, a release for Board members, included 11 new IO tables, one of which is for a new country in the GTAP Data Base. The Center expects to release 9.2 (Board only) by the end of 2016 with new IO tables. Also, the land use and MRIO extensions of the GTAP Data Base are expected to be released before the end of 2016.

Angel also presented the plans and release schedule for GTAP 10. Version 10 would consist of 4 reference years: 2004, 2007, 2011, and 2014. In version 10, we will be exploiting our inventory of IO tables, when possible, to avoid using exclusively the latest country IO table to our various reference years. By using year-appropriate IO tables, we hope to do a better job capturing ongoing structural change in the global economy.

In addition, using the latest ISIC and CPC classifications, we aim to increase the number of sectors in Version 10. The proposal focused on services sectors but it also considers expanding manufactures. The final number of sectors will depend on whether there is sufficient data to permit this increase.

Among other changes to the standard data base we would be introducing the treatment of domestic margins (discussed below), improving the treatment of commodity taxes (discussed below), agricultural production data, export subsidies, and the improvements to the dwelling sector.

Several comments were made by board members on several issues:

- The possibility to extend time dimension of the data base to years prior to 2004.
- Development of a biofuels data base, which would allow us to address issues of food security of particular interest in developing countries.
- Whether EU domestic support can be accessed by non-board members.
- Improving the quality of the data base should be the number one priority. There is a concern that given resource limitations, there is a trade-off between data base extensions and data base quality. Also, issues were reported regarding the import composition of a specific sector in a few developing countries.
- Calls for easier access to information regarding data base adjustments required for consistency between domestic and international data bases.
- Domestic support data will be soon available for a wide range of countries.

Regarding the development of data base for years prior to the base 2004. Robert McDougall explained that this would be much harder, particularly when it comes to aligning to the reference year of IO tables.

The development of a biofuels data base is important, but from prior discussions, in the near future biofuels may only affect a number of regions and as a consequence it has not been prioritized at the Board Meeting. Still, we have listed it under the secondary priorities of the additions and updates of the GTAP Data Base. The development of a satellite biofuels data base may be the first intermediate step if there is general support from the board.

The data team appreciates timely feedback. If you have encountered an issue with the GTAP 9 Data Base which you would like addressed, please email a detailed account to the [Data Team](#). The ongoing list of issues reported regarding GTAP Data Base is here:

- https://www.gtap.agecon.purdue.edu/databases/v9/v9_data_issues.asp
- https://www.gtap.agecon.purdue.edu/databases/v8/v8_data_issues.asp
- https://www.gtap.agecon.purdue.edu/databases/v7/v7_data_issues.asp

The Center produces information about the data base, but this is not being accessed. We will rethink how this information is conveyed. For example:

- The restricted board page also has this listing of issues that includes issues to releases that are only available to the board, see: https://www.gtap.agecon.purdue.edu/access_board/default.asp#releases, or:

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| <p>Restricted Advisory Board Section: Home</p> <hr/> <p>GTAP Data Base Releases</p> <p>GTAP Data Base interim release 9.1 (May 2016)</p> <p>GTAP 9.1 Data Base has the same 57 sectors and one new country bringing the total number of regions to 141. Several updates have been included and are detailed below. These data are now available with new data aggregator GTAPAgg2.</p> <p style="text-align: center;">GTAP 9 Data Issues GTAPAgg 9 License Release List</p> <p>GTAP Data Base interim release 9.1</p> <ul style="list-style-type: none"> • Input-Output Tables: 1 new table for Tajikistan bringing the total number of regions to 141. We have also received 10 tables to update the following countries: Switzerland, Venezuela, Thailand, Uganda, Philippines, Costa Rica, Tunisia, New Zealand, China, and India. • Income and factor taxes: update for all years (2004, 2007, and 2011). • International margins: new data has been included in this release for all years. • Services trade data: improved treatment for 2011. | <p>GTAP DB Releases</p> <p>Current Release Release List Documentation I-O Tables</p> <p>GTAP SDU Releases</p> <p>Current Release Release List Documentation</p> <p>Data/Resources</p> <p>Other Releases</p> <p>Miscellaneous</p> <p>Consortium Members Board Meeting Strategic Planning</p> |
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which opens the following:

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| <p>Restricted GTAP Advisory Board Section: GTAP 9 Data Base Releases & Data Issues</p> <hr/> <p>We are very interested in receiving your feedback on the quality of the GTAP Data Base. Please send any feedback you may have to the Data Team. All reports and responses to any issues raised will be posted below.</p> <p>Click the links below to navigate to each release. (GTAPAgg 9 License)</p> <ul style="list-style-type: none"> • GTAP 9 Data Base Data Issues • GTAP Data Base Interim Release 9.1 • GTAP 9a Data Base Bug-Fix release • GTAP 9 Data Base Release Candidate 2 • GTAP 9 Data Base Release Candidate • GTAP 9 Data Base Pre-Release 2 • GTAP 9 Data Base Pre-Release 1 <p>GTAP 9 Data Issues</p> <p>GTAP 9 Data Base PreRelease 1</p> <ul style="list-style-type: none"> • Issue in default labor mapping: Hans Jensen noted that the new labor category named "ag_othlowsk", which includes agricultural and other low skilled workers, is wrongly mapped to Skilled Labor in GTAPAgg for version 9 pre-release 1. This should instead be mapped to Unskilled Labor, for a meaningful aggregation of labor categories. • Solution: Please use this aggregation file instead of the file default.agg that is included in GTAPAgg. Alternatively, please manually map "ag_othlowsk" to ""UnSkLab". This will be fixed in the GTAPAgg that will be supplied with GTAP 9 Data Base pre-release 2. <p>Issues addressed in GTAP 9a Data Base (May 2016)</p> <ul style="list-style-type: none"> • Domestic support data Badri Narayanan reported that a processing error lead to significantly understating the 2011 domestic support in EU27 member countries. This is fixed in release 9a. • Capital stock data Alla Golub reported a very low capital stock level for Zimbabwe. Capital stock data were originally retrieved from the Penn World Tables and in release 9a selected countries in all three reference years have been revised using their regional average. | <p>GTAP DB Releases</p> <p>Current Release Release List Documentation I-O Tables</p> <p>GTAP SDU Releases</p> <p>Current Release Release List Documentation</p> <p>Data/Resources</p> <p>Other Releases</p> <p>Miscellaneous</p> <p>Consortium Members Board Meeting Strategic Planning</p> |
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We continue our efforts to improve the GTAP Data Base. Some issues are country-related, but the way the data base construction process is built, prevents us from performing ‘patch fixes’. If the source of the problem is a particular IO table, then we attempt to fix it or obtain an improved table. If this is not possible, then it is no longer listed separately (i.e., becomes part of a regional aggregate). When the issue involves a process, for example the agricultural disaggregation module, then any adjustment to the process will affect all those countries that have to undergo agricultural disaggregation.

We will continue to look for ways to improve the data base and we are very open to collaborations aimed at such improvements.

Badri Narayanan indicated that domestic support estimates are available to the board and general access will be discussed with the contributor.

- b. Reshaping Services** - Robert McDougall described work done on trade in services for release 9, and prospects for release 10. Currently we use services imports and exports data from the

IMF's *Balance of Payments Statistics* (BPS), and bilateral services trade data contributed by the Dutch Central Planning Bureau, derived from the UN's *Services Trade Database* and Eurostat's *Balance of Payments Database*. Work for release 9 was affected by the adoption in the IMF's *Balance of Payments Statistics* (BPS) of the sixth edition of the *Balance of Payments Manual* (BPM6). Statistics based on the fifth edition are available only up to 2008; statistics based on BPM6 present novel problems. For BPS statistics in release 9, in place of data for 2011, we use 2007 data rescaled by a single scalar; in release 9.1, 2007 data rescaled by country- and direction-specific scaling factors.

For release 10, problems and opportunities include the adoption of a new GTAP sectoral classification, based on revision 4 of the *International Standard Industry Classification*; the possible unavailability of bilateral trade data from the CPB; the emergence of new potential sources such as the global matrix of trade in services for TiVA, and the World Bank's *Trade in Services Database*; and the appearance in BPM6-based statistics of data bearing on the sectoral composition of travelers' expenditures.

- c. **I-O Tables** - Angel Aguiar presented the status of I-O tables in the GTAP Data Base. A summary that refers to the new countries that have been included since last year and a list of prospective countries to be updated in the coming year, including those listed in the chopping block. In particular, we will be working with the EU and US contributors to finalize their contributions. Additionally, we are in contact with National Statistical Offices and longtime contributors to continue the flow of IO table contributions.

The presentation included a summary of the contribution process. All the center requires is a change in format; the table should be balanced before and after reformatting. The new format implies that cells in each matrix are non-negative, except for change in stocks. Based on the data we require; taxes can be estimated. These are verified when they exceed a generous threshold. Finally, we compare the cost structure of the contributed table against that of a representative table and against the previously contributed table, if it exists.

The contribution is an iterative process, which aims to assure we only accept quality IO tables. The length of the process depends on the time availability of the contributor. It can go from a couple of weeks to a couple of months. In case a table does not meet the minimum requirement of 30 GTAP sectors, or if the table has other issues, we request the help of external reviewers who would help us evaluate that a given table is better to have than otherwise.

There was an interest in being able to compare the post-adjustment table to the original contributed IO table at the same level of aggregation of the original table and we will look into this when applicable. In most cases, the contributor is willing to share the original IO table with the general public, but there are some unwilling to do so, or may only wish to share on a case-by-case basis. When contributors agree, we include the original IO table and the relevant concordance with the IO report that is available to Board members. In addition, we prepare an annual report available to our board members, after login click on 'I-O Tables' on your right, and then click on the 2nd numeral 'reports' for every country table report or in the 3rd numeral 'report' for the annual report of all tables currently in the data base:

| Restricted Advisory Board Section: I-O Tables | GTAP DB Releases |
|--|--|
| <p>Over the last few years the Center for Global Trade Analysis has made a concerted effort to improve its communications with I-O contributors and the procedures it uses to check the quality of I-O tables. As part of this effort, a number of activities have been undertaken.</p> <ol style="list-style-type: none"> <li>1. A website has been set up to assist contributors <li>2. Angel Aguiar has been given the task of communicating with contributors, <u>checking I-O tables</u> and preparing <u>reports</u> on all recently contributed I-O tables. These reports are available to board members and contributors. <li>3. A <u>report</u> on a) the quality of existing I-O tables; and b) which countries the Center should be focusing on obtaining new contributions, has been produced. Recent versions of the regional input-output tables used in the data base construction are also available as part of the <u>reports</u>. | <p>Current Release Release List Documentation I-O Tables</p> <p>GTAP SDU Releases</p> <p>Current Release Release List Documentation</p> <p>Data/Resources</p> |

- d. **Income and Factor Taxes** - Robert McDougall described work done on income and factor taxes, incorporated in release 9.1. As before, data are drawn from the IMF's *Government Finance Statistics*. There are some small changes in methodology: a more robust approach is taken to filling in rates for missing countries, and for social contributions, the average rates applied to missing countries are differentiated by World Bank income grouping. Larger changes in methodology have been deferred for consideration in release 10; one such possible change is apportioning taxes on individuals across all primary factors instead of restricting them to labor.
- e. **International Margins** - Robert McDougall described work done on international transport margins for release 9. Previously, modal shares were based on data contributed by Mark Gehlhar, for United States imports and exports. Now we use a data set developed in-house, by Nelson Villoria and Jose Nuño, based on econometric studies by David Hummels and associates. Though far more extensive than the previous data set, it still has large gaps, especially in South-South trade. In filling these in, we apply average modal shares differentiated by commodity and connection type (unconnected by land, connected, adjacent), then balance against target totals derived from the merchandise and services trade data sets. End results differ surprisingly little from those obtained with the old starting estimates, suggesting a dominant role for the target totals. David Laborde asked whether there was any obvious source of variation in data quality across mode. Robert McDougall replied that our services trade data exclude transport margins supplied by the importing country, and that this was likely most seriously to affect data for land transport.

2. The Network

- a. **GTAP Research Fellows** - The Board approved the following individuals to serve as GTAP Research Fellows for 2016-2019.
 - Philip Adams
 - Antoine Bouët
 - Shantong Li
 - Khalid Siddig

The following individuals have agreed to serve on the 2017 Research Fellows Committee.

- Kenichi Kawasaki (Chair)
- Stephen Karingi
- Thomas Hertel

The Board approved the following to be inducted into the GTAP Hall of Fame.

- Will Martin

- b. **GTAP Conferences** - Presentations and subsequent discussions on the current and future GTAP Conferences was held with the following outcomes.

- **2016 Conference Update** - Maryla Maliszewska (World Bank) updated the Board on the 19th Annual Conference on Global Economic Analysis, specifically focusing on the record-setting number of expected attendees.
- **2017 Conference Update** - Ginger Batta (GTAP) presented an update on planning for the 20th Annual Conference, which will be held June 7-9, 2017 at Purdue University. The 2017 Conference Program Committee was established prior to the board meeting and met during the conference to begin formal discussions on potential sources of funding, plenary speakers, and organized session topics. Moving forward, the committee will continue these discussions via email.
- **2018 Conference Update** - Andrés Escobar (Universidad de Cartagena) and Alejandro Pardo (ProColombia-USA), presented the proposal to hold the 21st Annual Conference in Cartagena, Colombia in June 2018. The board unanimously approved this proposal.

3. New Developments at the Interface of Data and Modeling

- a. **Incorporation of Domestic Margins** - Erwin Corong provided an update on incorporating domestic margins in the GTAP Data Base and the standard model. The presentation underscored the importance of accounting for domestic margins, since such flows--which are currently not explicitly accounted for in the GTAP Data and modeling framework--represent the marketing and transport costs associated with delivering commodities from suppliers to users. Erwin mentioned that so far, 32 IO tables with domestic margins have been processed within the Center and that a preliminary GTAP v9 Data Base with domestic margins has been produced. Work on domestic margins is proceeding as planned and that the Center envisions having domestic margins incorporated in the second pre-release of GTAP v10 (May 2017). Parallel work on updating the standard GTAP model with domestic margins will also be carried out, with a preliminary version of the model to be presented during the 2017 GTAP conference.

During the discussion, Mark Horridge asked two questions, namely: (a) the method being used to estimate domestic margins for IO tables with no domestic margins information; and (b) If the estimation of CDE parameters will be modified. Erwin responded that the “Horridge approach” is being used to estimate domestic margins for IO tables with no domestic margins information, while Tom Hertel suggests that the CDE parameters could be based on estimation using the margins-inclusive data when that becomes available.

Mary Burfisher also inquired about backward model compatibility, in light of updating the standard GTAP model to account for domestic margins. Dominique van der Mensbrugge responded that the Center has not thought about it yet and needs to think about it carefully.

- b. **MRIO** - Caitlyn Carrico discussed the official GTAP Multi-Regional Input-Output (MRIO) Database. Based on the GTAP Database version 9, GTAP MRIO construction incorporates external information on trade values and tariff rates from the TASTE version 9 database and implements the UN BEC and SNA concordances. The end product is an MRIO which differentiates not only trade sourcing but also tariff sourcing by agent.

The GTAP MRIO database shows tariff rates to generally be higher on consumer goods than intermediate goods, across commodities and countries. With these differentiated tariffs, the GTAP MRIO offers researchers and policy analysts a more accurate dataset with which to work. In an illustrative CGE experiment of a unilateral trade liberalization, the GTAP MRIO with differentiated tariffs demonstrated remarkably different patterns of trade when

compared to either the fully proportional MRIO or the BEC-based MRIO without differentiated tariffs.

Further, the GTAP MRIO is an important data contribution which supports many novel theoretical advances in modeling. For example, earlier versions of the GTAP MRIO have been used for CGE models of firm heterogeneity and public procurement. The GTAP MRIO is currently proposed to be released as a satellite database.

- c. Labor Database** - Caitlyn Carrico reviewed the working papers documenting the disaggregate labor statistics which have been incorporated into the GTAP database since version 8.1L. At present, the documentation by Walmsley and Carrico (2013) describes the processing and incorporation of ILO data from Weingarden and Taigas (2010). Based on feedback from submission of Walmsley and Carrico (2013) to the GTAP Technical Papers series, this paper will be merged with Weingarden and Taigas (2010). This combined paper will better equip GTAP users to understand the nuances of the labor data for optimal application in modeling.
- d. Mainstreaming HET Model** - Zeynep Akgul presented the recent advancements and outstanding challenges in the GTAP firm-heterogeneity model and parameterization. The GTAP-HET model and documentation are published in the *Journal of Global Economic Analysis* with associated modeling software. GTAP-HET will be one of the applications in the 24th Annual Short Course in Global Trade Analysis in August 2016. This work is intended to culminate in a standard tool for undertaking firm heterogeneity analysis within the GTAP framework. The questions discussed after the presentation are mostly about the estimation and interpretation of structural parameters in firm heterogeneity models, such as the shape parameter of productivity distribution and elasticity of substitution amongst varieties. In particular, we discussed that Armington elasticities are not appropriate to use in the firm-heterogeneity models as we need to consider both the intensive and extensive margins of trade, which also means that the interpretation of the structural parameters should be different than the traditional interpretation. The question of how to share the information on parameter estimates was also raised. Another important point discussed was the comparison of different model specifications, such as how to compare a Melitz-based CGE model with an Armington-based CGE model, whether to equate trade flows across models and which parameter estimates to use. Initial estimation/calibration of the structural parameters of the model has been completed for the GTAP manufacturing industry definition, under the USITC project. Future work includes further parameterization and development of the GTAP-HET model. This work will focus more on the comparison of different model structures and definition, estimation, and calibration of the firm heterogeneity parameters further incorporating the current developments in the empirical literature on this topic into the CGE analysis.
- e. Advances in Water** - Jing Liu reported that since 2010, the Center has developed three models in which water is an explicit endowment input. The first one is the GTAP-BIO-W model, builds on IFPRI's IMPACT water simulation model and contains 126 river basins globally. The second model, dubbed as SIMPLE-on-a-grid, considers 958 sub-basins globally, based on University of New Hampshire's water balance model. The third one is the ENV-Linkages model, which considers both irrigation and non-agricultural water uses. These modeling advances effectively addressed the demand for understanding the interaction of water with land, energy, and climate, as well as its impact on environment and global food supply. Our work related to water has resulted in a number of published journal articles (Global Environmental Change, Water Economics and Policy, and Energy, Sustainability and Society, etc.) and research proposals submitted/funded by the DOE, NSF, and USDA. The next step regarding water is to explore the global-local-global feedback using this modeling framework. Questions and discussions from the board were focused on two points: 1) model

- d. **Journal of Global Economic Analysis** - Niven Winchester reported to the board that the inaugural issue of the JGEA (www.jgea.org) had just been released. JGEA is co-edited by Thomas Hertel and Winchester, and features an Editorial Board comprising fourteen of the foremost intellectual leaders in our profession. JGEA provides an open access, peer-reviewed platform for publication and dissemination of innovations in modeling, data, software and teaching for applied general equilibrium (AGE) analysis. The first issue featured two important new papers – and associated modeling software -- for implementing Melitz-style firm heterogeneity into AGE models. It also included two papers on data base developments: the GTAP 9 Data Base and the GTAP-Power Data Base. Finally, it included a paper documenting software for accessing, manipulating and presentation the World Bank's WDI data base.
- e. **Conference Mentoring Program** - Ginger Batta presented the new conference mentoring program to the board. Thirty-eight first-time presenters at the GTAP Conference were paired with mentors to help the mentee deliver a successful presentation and also network during the conference. Moving forward, based on evaluation results, Ginger will make adjustments as needed to continuously improve this program.
- f. **Graduate Program Development Plan** - Zeynep Akgul and Caitlyn Carrico presented plans to further develop structure in the GTAP graduate program. They discussed three main points: foundations, center mentorship, and board mentorship. To develop foundations, Carrico is organizing an orientation for students new to the Center in early September 2016. The orientation will integrate the students into the graduate program and the GTAP Center more quickly and effectively. Further, brown bag seminars and student meetings will foster Center mentorship amongst peers as well as with Research staff. Akgul and Carrico also discussed the importance of Board mentorship to facilitate collaboration between GTAP students and researchers beyond the Center. For example, as part of a project between a Board Member and the Center, a student could visit the Institution as an intern and/or to give a seminar. Further, economists from Board Member institutions could take part in student research as committee members, offering the student unique policy-insight and offering the researcher an opportunity to be involved in academic research. The topic of Board mentorship idea was well received by Board Representatives, and there was discussion on different ways of formalizing such mentorship.

6. Priorities for Forthcoming Year

- a. **Center Finances** - Wendy Kincaid reported that the Center should see a modest budget surplus in 2016 based on the projection of GTAP 9 sales. The difference in new vs. upgrade sales caused the actual sales revenue to be slightly lower than projected, but it was emphasized that the deficits and surpluses generally average out over the 3-year cycle of data base sales. A significant portion of Center funding continues to come from external sources and is critical to a balanced budget.
- b. **Staffing** – Dominique van der Mensbrugge highlighted that it was an intense year in terms of recruiting. The Center had two vacancies—one with the data team (Badri's former position) and a research professorship (Nelson's former position). The Center was also heavily involved in Departmental vacancies—particularly for a new trade position. The Center is very pleased to see Uris Baldos move into Nelson's position. Uris had been a post-doc with the Center after receiving his PhD. from Purdue. Uris's major research areas at the moment are the study of the relations between R & D expenditures in agriculture and their impact on productivity and developing a gridded version of the SIMPLE model. Recruitment for the data team position was nearly completed at the time of the Board meeting. We are now pleased to announce that Maksym Chepeliev will be joining the Center's staff on August 1st. Maksym is a relatively recent PhD. from the Institute for Economics and Forecasting in

Kiev. He has expertise in CGE modeling and has worked on energy policies in Ukraine with a focus on household impacts. He had the opportunity to be introduced to GTAP through a series of lectures on GTAP provided by Marinos Tsigas in Kiev. We would also like to welcome Dr. Russell Hillberry who will be joining the faculty of the Department of Agricultural Economics at Purdue University and will be an associate of the Center.

- c. Priorities for Forthcoming Year** – Dominique van der Mensbrugge presented some of the key priorities for the forthcoming year.
- i.** Quality control has been the number one priority since GTAP's inception and will continue to be so in the future. The Center will take a more in-depth dive to look at some of the systemic issues raised during the meeting. (In fact a data team retreat has been scheduled to review the entire 'build' process and assess the possibilities for improvements, simplification and enhancing communications.)
 - ii.** The Center expects a Board-release of 9.2 before the end of 2016 that would incorporate new (2010-based) IO tables for all 28 EU countries and the USA. The Center also has a parallel track for a 2016 Board pre-release of Version 10 with 4 reference years including a new reference year for 2014. Subsequent pre-releases will incorporate the new domestic margin module and a new set of sectors.
 - iii.** On the research side, the Center will continue to work on a slate of projects including firm heterogeneity (with the US ITC), global supply chains and the MRIO database and model, the food/energy/water nexus, climate policy, land-use, bio-energy and forestry.
 - iv.** The standard GTAP model has been static for over a decade. The Center is working on a facelift of the model that is intended to add flexibility to the standard model without sacrificing ease-of-use and transparency. (As part of the facelift, the Center hopes to consolidate the model documentation and to re-organize the documentation as a wiki-site.) The new standard model will also be modified to incorporate the domestic margins module currently under development. The firm heterogeneity model (GTAP-HET) is now publicly available (www.gtap.agecon.purdue.edu/resources/jgea/ojs/index.php/jgea/rt/suppFiles/18/0). Work is proceeding to finalize the power (GTAP-POW) and MRIO (GTAP-MRIO) models.
 - v.** The Center is increasing the number of offered courses with its first new course in GTAP-U. The course, on-line only at the moment, is focused on preferential trade agreements (PTA) and has been developed by Mary Burfisher. Other GTAP-U modules are under discussion including one on firm heterogeneity (GTAP-HET).
 - vi.** In terms of communication, we have already mentioned above the desire to re-design the website. We will also be working with Board members and the network more broadly to develop special events for the June 2017 conference that will commemorate the 20th anniversary of the first annual conference. Stay tuned. Finally, the Center will be thinking of ways to further engage with Board members throughout the year.