



GTAP Advisory Board Meeting Summary
Warsaw, Poland
June 17-18, 2019

Attendance

GTAP Center: Angel Aguiar, Ginger Batta, Mary Burfisher, Maksym Chepeliev, Erwin Corong, Thomas Hertel, Robert McDougall, Holly McIntire, Dominique van der Mensbrughe

Board Representatives: Martin Banse, Kirsten Boysen-Urban, Lucian Cernat, Mohamed Abdelbasset Chemingui, Lurong Chen, Shenjie Chen, Jean Fouré, Joseph Francois, Mark Horridge, Nobuhiro Hosoe, Ben Hunt, Stephen Karingi, Bob Koopman, Jason Levin-Koopman, Shantong Li, Maryla Maliszewska, James McFarland, Mondher Mimouni, Brian O'Neill, Sergey Paltsev, Ralf Peters, William Powers, Chris Rasmussen, Bert Saveyn, Natalie Soroka, Frank van Tongeren, George Verikios

Guests: Amanda Countryman, Jan Jakub Michałek

A. Summary of Goals and Accomplishments in the Past Year

https://www.gtap.agecon.purdue.edu/events/Board_Meetings/2019/documents/2019_IssuesReport.pdf

B. Summary of Agency Activities in the Past Year

https://www.gtap.agecon.purdue.edu/events/Board_Meetings/2019/index.aspx#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 |
|---|----------------------------------|
| Improvement of Datasets used in GTAP Data Base (core) | Aguiar |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> Procurement: Macroeconomic, trade, and tariff data | Aguiar |
| <ul style="list-style-type: none"> Procurement: Continue to work with IO table contributors and development of score card to better understand where are the largest changes taking place during the construction of GTAP. | Aguiar |
| <ul style="list-style-type: none"> Improve IO tables transition process | McDougall |
| <ul style="list-style-type: none"> Review of labor and land disaggregation from value added | Corong |
| <ul style="list-style-type: none"> Development of the cross-entropy approach to the updating and construction of the GTAP Data Base | Chepeliev |
| <i>Secondary priorities:</i> | |
| <ul style="list-style-type: none"> Development of the disaggregated agricultural database for the GTAP-HS¹ | Chepeliev |
| <ul style="list-style-type: none"> Examine integration of biofuels into standard data base (in addition separation of heat and power) | Chepeliev, McDougall, Taheripour |
| <ul style="list-style-type: none"> Data/program separation | McDougall |
| <ul style="list-style-type: none"> Procurement: Domestic support and export subsidies | Aguiar |
| <ul style="list-style-type: none"> Procurement: New bilateral services trade | McDougall |
| <i>Tertiary Priorities</i> | |
| <ul style="list-style-type: none"> Agricultural Production Targeting (APT) integration into FIT | McDougall |
| <ul style="list-style-type: none"> Dwellings Module | Aguiar |
| <ul style="list-style-type: none"> Procurement: Energy data | Chepeliev |
| <ul style="list-style-type: none"> Procurement: Income and factor taxes | McDougall |
| Addition/Improvement of Satellite Data (core) | Aguiar |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> Domestic Margins: special version for GTAP 10 | Corong |
| <ul style="list-style-type: none"> Multi-region Input Output Database (GTAP-MRIO) | van der Mensbrugge |
| <ul style="list-style-type: none"> GTAP-E | Aguiar |
| <ul style="list-style-type: none"> GDyn database | Golub |
| <ul style="list-style-type: none"> GMIG database | Corong |
| <ul style="list-style-type: none"> Land use database | Baldos |
| <ul style="list-style-type: none"> Update Power; non-CO₂ GHG; and air pollution database | Chepeliev |
| <ul style="list-style-type: none"> Agricultural Production Targets (FAO): special version of GTAP 10. Including Food balance sheets | Chepeliev |
| <ul style="list-style-type: none"> SSP DB | Chepeliev |
| <ul style="list-style-type: none"> Energy subsidies database | Chepeliev |

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

| Tasks | Responsibility |
|-------|----------------|
|-------|----------------|

¹ Formerly listed as GTAP PE-GE model. GTAP-HS seems to be better branding of modelling at the more detailed 6-digit level of Harmonizes System.

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|---------------------------|--|
| | |
| <i>Primary Priorities</i> | |
| | |

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

| Tasks | Responsibility |
|---|----------------|
| | |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> • GTAP-HS-TRQ | Golub |
| <ul style="list-style-type: none"> • GDyn | Golub |
| <ul style="list-style-type: none"> • GTAP-RD | Corong |

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"> • Strategic planning meeting | Batta, Burfisher |
| <ul style="list-style-type: none"> • Dynamic Short Course | Aguiar, Batta, Douglas |
| <ul style="list-style-type: none"> • GTAP Short Course | Keeney, Batta, Douglas |
| <ul style="list-style-type: none"> • GTAP 101 Courses | Countryman, Batta, Douglas |
| <ul style="list-style-type: none"> • GTAP PTA Course | Walmsley, Strutt, Batta, Douglas |
| <ul style="list-style-type: none"> • GTAP-HET Course | Akgul, Batta, Douglas |
| <i>Secondary Priorities</i> | |
| <ul style="list-style-type: none"> • Continue investigating additional special topic online mini-courses | van der Mensbrugge, Hertel |
| <ul style="list-style-type: none"> • Continue development and implementation of an “Alumni Outreach/Continued Learning Initiative” for short course graduates | Keeney |

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

| Tasks | Responsibility |
|---|--------------------|
| | |
| <i>Primary Priorities</i> | |
| <ul style="list-style-type: none"> • No changes planned for the moment with the exception of recruiting 1 or 2 additional graduate students. | van der Mensbrugge |

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

| Tasks | Responsibility |
|--|----------------------------------|
| GTAP Conferences and Board Meetings | Batta, van der Mensbrugge |

| <i>Primary Priorities</i> | |
|--|----------------------------|
| • 2019 Board Meeting and Conference (Warsaw, Poland) | Batta, van der Mensbrugghe |
| • 2020 Board Meeting and Conference (Tokyo, Japan) | Batta, van der Mensbrugghe |
| • 2021 Conference Proposal (Fort Collins, Colorado, USA) | Batta, van der Mensbrugghe |
| • 2022 Conference Proposal (Africa) | Batta, van der Mensbrugghe |

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

| Tasks | Responsibility |
|---|-------------------------------------|
| Improve user support system | |
| <i>Primary Priorities</i> | |
| • GTAP-L, gtapsupport, contactgtap: continue offering support | Batta, Chepeliev |
| • Website redesign/redevelopment (GTAP website, GTAP-HUB) | Douglas, van der Mensbrugghe, Batta |
| Strategic Communication | |
| <i>Primary Priorities</i> | |
| • GTAP Social Media – continue to increase presence | Batta |

E. Summary of Discussions

1. Welcome and Overview

a. Overview and Issues

Dominique van der Mensbrugghe (GTAP) opened the meeting welcoming everyone to Warsaw, introducing new board representatives, covering the meeting agenda, the Center’s goals, agency reports, and network growth updates.

b. GTAP 10 Data Base

Angel Aguiar (GTAP) presented the new features of GTAP 10. Regular updates and methodological improvements were mentioned. The series of releases that led to the release of version 10 were also summarized. Prior to open the discussion, we listed several opportunities for further work.

Joe Francois (WTI) opened the discussion by indicating that Balance of Payments 6 focusses on ownership and this would affect services and merchandise trade statistics. Robert McDougall (GTAP) indicated that possible issues are not evidenced in the services trade data.

Frank van Tongeren (OECD) interested that the issue of negative savings becomes a top priority. Regarding Ag-Domestic support for LATAM and Africa, Frank believes this should be possible for LATAM where he has seen the data and it matches OECD level of detail.

Maryla Maliszewska (WB) and Jean Fouré (CEPII) commented that the labor group had organized a session during the conference and would be trying to push forward data inputs to improve labor splits across sectors.

Matching the trade balance of each country, if possible, would be beneficial to many as this is not part of the targets, since we focus on the balance trade at the commodity level.

2. The GTAP Data Base: Updates on Core Components

a. Transition Tables

Robert McDougall described work done to transition legacy data from the sectoral classification (GSC2) used in recent GTAP data releases, based on revision 3 of the International Standard Industry Classification (ISIC) to the new ISIC 4 based GSC3. This involved work on both input-output tables and data for services trade.

b. I-O Tables

Angel Aguiar presented the new tables included in GTAP 10. Fifty updates and one new country I-O tables are in GTAP 10. A summary of our procedures was presented and a call for more I-O tables to truly capture structural changes over time in the time series GTAP data that we are developing. The session ended with special remarks by Stephen Karingi (UNECA). Stephen indicated that there is a regional focus to develop these statistics at the National Statistical Office. The process will be long, but it is a better idea than continue to use data estimated by external researchers.

Maryla Maliszewska asked if we could have a more active role obtaining I-O tables, many times there are more up to date tables at the WB that are not part of GTAP and there are scarce funds to hire a consultant to processed the data in GTAP format. Tom Hertel (GTAP) indicated that the incentives seem right as we provide access to GTAP to those contributors who also help assure the quality of GTAP is right with their country/data expertise.

Bert Saveyn (JRC) interested in score-card for I-O tables to track where the changes are occurring. This has been one of the objectives that had to be postponed for prioritizing the main data base release.

c. Future Releases

Angel Aguiar presented the plan for the upcoming satellite and special releases based on version 10. We will begin to release satellite datasets within 2 months of the final release for the board and another 2 months to the general public. Special releases would incorporate special features such as domestic margins, FAO based APT, and energy subsidies. New tables would also be included if available. For version 11, we plan to use 2017 as the new reference year and plan to have 3 pre-releases expected every March until 2022.

Frank van Tongeren suggested FAO data to complement OECD use so that domestic support levels is not affected.

The floor asked that given the potential effects of BOP6 in services trade data, that we begin to look at the data prior to pre-release 3. EC, ITC, WTO, WB, and WTI offered to help introduce services into GTAP format.

Also, to consider skilled vs. unskilled based on education level and not occupation.

3. Education, Outreach, and Strategic Communication

a. Education and Mentoring

Mary Burfisher (GTAP) reviewed the current and near-future educational and mentoring programs that the Center currently offers also informing the board that the Center will

hold a strategic planning meeting in late 2019 to develop a strategic plan to help structure and guide the Center's expanding "GTAP-U" offerings.

b. *Journal of Global Economic Analysis*

Tom Hertel reported that the journal has now published six issues – with the first issue of 2019 coming out at the end of June. The citation ranking is looking positive and the editors are starting to build a backlog of submissions. He encouraged board members to have their staff and colleagues consider the JGEA for any foundational work, which they are doing.

c. **GeoHub Platform**

Dominique van der Mensbrugghe discussed the objective of using the GeoHub as a platform for distributing the GTAP Data Base and model, with ancillary materials. The GeoHub has been discussed with the board in the past and it is viewed as a potential focal point for integrating models (including across disciplines) and data. One key objective is to have a platform with up-to-date and accessible model code and documentation with embedded and searchable hotlinks. A second objective is to move towards modularized versions of the GTAP model (for example GTAP-E, GTAP-HS, GTAP-RD, etc) in an integrated fashion. GeoHub can also be used to host GTAP-based models such as ENVISAGE. In the longer run, GeoHub could also be used to run model simulations and for visualization of data and model results. GeoHub also hosts Python and R and thus community-developed and shared scripts would be made available for customized tables and charts.

d. **CGTA PhD Students**

Board members have expressed interest in keeping tabs on the PhD students working with the Center, so Tom Hertel presented on what each of the Center's current students are working on and when they would be entering the job market. Board members can access more information about students working with the Center at: www.gtap.agecon.purdue.edu/about/center.aspx (scroll to "Center Graduate Students" list and click "Full Details")

4. New Developments at the Interface of Data and Modeling

a. **GTAP-PE (GTAP-HS)**

The Center for Global Trade Analysis' Data Team provided an overview of the developed GTAP-PE modelling framework – an extension of the standard GTAP v7 model (after follow up discussions, it was decided to call this framework GTAP-HS, where "HS" stands for Harmonized System). The general idea of the GTAP-HS framework is that each GTAP sector produces multiple products. So, while the sector definition follows the GTAP aggregation, commodity production is at the level of individual tariff lines. These commodities are consumed domestically and traded internationally, allowing for trade policies to operate differentially across tariff lines.

The Data Team has presented an example of the GTAP-HS framework application, disaggregating GTAP "vegetables, fruit and nuts" sector into 79 commodities and exploring the impacts of ongoing trade frictions between U.S. and China at the disaggregate commodity level.

Further steps of the GTAP-HS framework development would include incorporation of the tariff rate quotas and development of the special release of the GTAP-HS agricultural database.

Frank van Tongeren asked what is the motivation behind using FAO data instead of OECD for agricultural production targeting and what happens to the producer support estimates (PSE) if OECD and FAO data do not agree? Maksym Chepeliev responded that FAO data are planned to be used for non-OECD-reported countries/regions only (e.g. South America, Africa, selected Asian countries, etc.), therefore such issue should not arise. At the same time, in case of some OECD-reported countries (e.g. China, Indonesia, etc.) large differences are observed between OECD and FAO data. Country-specific reports provide more support for the FAO numbers; therefore, such cases should be further explored.

Mark Horridge indicated that current set up (single nest that captures substitution between different commodities within disaggregated sector), might not provide enough flexibility for representing substitution processing between different subsectors (e.g. annuals and perennials within the “vegetables, fruit and nuts” sector). In some cases, it might also be relevant to split the sectors of interest, before introducing the split at the tariff line level.

b. ITC-MacMap TRQs

Mondher Mimouni (ITC) presented the new features of the UN-ITC’s publicly available MacMap database (www.macmap.org). He explained that MacMap’s online data query structure has been streamlined and expanded to support their goal of improving transparency in international trade and market access. In addition to bilateral tariff information at the HS-level dating back to 2006, MacMap also provides information on: bilateral tariff rate quotas (TRQs) at the HS-8 level; weighted GTAP commodity tariffs for the reference years 2007, 2011 and 2014; trade remedies (anti-dumping, countervailing duties and safeguard measures) applied by 47 countries as of April 2019; other measures (implemented by USA, China, Canada, Mexico, Turkey, EU and Russia) that fall outside the scope of trade remedies; preferential tariff reduction schedules from 2014 to 2046 covering 300 trade agreements and rules of origin facilitator to help guide exporters.

5. The Network

a. GTAP Research Fellows

The Board approved the following individuals to serve as GTAP Research Fellows for 2019-2022.

- Eddy Bekkers
- Wolfgang Britz
- Everett Peterson
- Anna Strutt

The Research Fellows Committee for 2020-2022 will be:

- Frank van Tongeren (chair)
- Janine Pelikan (board representative)
- Thomas Hertel (CGTA representative)

b. GTAP Conferences

Presentations and subsequent discussions on the current and future GTAP Conferences were held with the following outcomes.

- **2019 Conference Update** – Jan Michalek (University of Warsaw) updated the Board on the 22nd Annual Conference on Global Economic Analysis, focusing on the events for the week and conference demographics.

- **2020 Conference Update** – Nobuhiro Hosoe (GRIPS) presented updates on the planning for the 2020 conference in Tokyo. The 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.
- **2021 Conference Proposal and Vote** – Amanda Countryman (Colorado State University) presented the proposal to hold the 2021 conference in Fort Collins, Colorado in June 2021. The board unanimously approved this proposal.
- **2022 Conference** – Preliminary discussions were held regarding potential locations and partnerships for 2022, targeting southern Africa for a location. Ginger Batta (GTAP) will begin working on the proposal for circulation to the board in late 2019.

6. New Developments at the Interface of Data and Modeling

a. Update on Services Data

Bob Koopman (WTO) discussed the WTO's global Trade in Services by Mode of Supply (TiSMoS) dataset for the period 2005 to 2017, which is funded by DG Trade of the European Commission. He elaborated that TiSMoS uses the WTO-UNCTAD-ITC bilateral service sector trade data to measure resident and non-resident transactions following 2010 Extended Balance of Payments Classification (EBOPS). In turn, each country's balance of payments data is complemented by estimates of the size of commercial presence (mode 3) from Foreign Affiliates Statistics (FATS) data. Bob confirmed that TiSMoS will be made available to the GTAP consortium and that work is underway to create a TiSMoS version consistent with the 6th edition of the Balance of Payments and International Investment Position Manual (BPM6).

b. Updates on Labor

Tom Hertel presented that the Center has been working closely with Prof. Everett Peterson of Virginia Tech on the incorporation of frictional unemployment into the GTAP framework. Everett presented his work in a seminar at Purdue in early May and his main findings were presented to the board in Warsaw. His paper documenting this approach is now under review with the *Journal of Global Economic Analysis*. Board members interested in this work are encouraged to contact Tom Hertel and volunteer their services – or those of their staff – to serve as reviewers of this work.

7. Priorities for Forthcoming Year

a. Center Finances

Dominique van der Mensbrugge reported expected surpluses of \$99K for FY19 and \$502K for FY20. The large surplus in FY20 is due to anticipated GTAP 10 sales, which will decrease each following year of the sales cycle.

b. Priorities for Forthcoming Year

Data: Final release of V10 including satellite accounts; start work on V11 (with 2017 reference year); improve work flow for TASTE and incorporate TRQs (in cooperation with the Thünen Institute, ITC/Geneva, CoPS and IFPRI); accelerate work on incorporating more input-output tables from Sub-Saharan Africa, expand the energy module for heat and power and bio-energy; work towards improving the services data; and assess feasibility of new 'FIT' methodology.

Model: Finalize ‘facelifted’ models: GTAP-E, GTAP-HS; review implementation of TRQs; and assess feasibility of sub-regional modeling (e.g. University of Wisconsin-based WiNDC project for the U.S., existing potential in the EU and China).

Research: Expand the potential for multi-model and multi-disciplinary research: for example, linking CGE models with PE models (agriculture/energy), or hydrology and/or other biophysical models and CGE models; publish baseline project papers; participate in new project on estimating trade elasticities (at the HS-6 level); and continue work on the changing trade environment and regional initiatives such as the African Continental Free Trade Area (AfCFTA).

Network: Revamp the Center’s framework for documentation (of databases, models, and ancillary programs); pursue GTAP-U and assess potential for new modules, for example GTAP-E, GTAP-HS, TASTE; look into potential for regional short courses (for example coordinated with the WTO chairs); and pursue venues for future conferences (2020 and beyond).

8. Additional Meetings

a. Update on IPCC/Scenarios Forum

Brian O’Neill (Korbel School of International Studies/University of Denver) provided an overview of activities of the Intergovernmental Panel on Climate Change (IPCC) and the first Scenarios Forum held and hosted by the University of Denver (March 2019). Current IPCC-related analysis is being driven by the so-called Representative Concentration Pathways (RCPs) and the Shared Socio-Economic Pathways (SSPs)—the RCPs are guiding the global climate models (GCMs) and the SSPs the integrated assessment models (IAMs), though with many spillovers in other climate change related analysis such as impacts, adaptation and vulnerability over a wide variety of topics and spatial resolution. Brian reported that both the RCPs and SSPs are being widely used in the climate research community (including in new areas such finance, nitrogen and oceans). For example, as of March 2019, some 385 papers had used 2 or more SSPs.

b. Update on NTMs: Evaluation and Implementation

Joseph Francois (WTI/CEPR) provided an overview of the current efforts in evaluation and implementation of non-tariff measures (NTMs). The discussion evolved around multiple topics. One of them included NTM data inventory and the fact that different data sources provide different parts of the overall picture. The presentation also discussed different approaches to the NTM modelling of the Transatlantic Trade and Investment Partnership (TTIP) agreement and how underlying assumptions could impact simulation results.

Several specific implications were also discussed for GTAP. First of them included current efforts to produce structural gravity based pairwise relative trade costs by GTAP sectors and countries within the PRONTO project. Second point raised a broader issue of NTMs implementation in the computable general equilibrium (CGE) and structural gravity (SG) models. It was pointed out that NTMs’ implementation depends on the structure of the model (e.g. fixed vs variable costs; rents vs costs; Melitz vs Armington). Finally, implications for tariff experiment design (with promising contribution of the ITC rules of origin data), as well as role of the market structure were discussed in terms of the NTMs implementation in GTAP.