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

Compiled by
Terrie Walmsley

With contributions from Judy Conner, Betina Dimaranan, Thomas Hertel, Huey-Lin Lee, Ginger McColley, Robert McDougall, and Wallace Tyner

Center for Global Trade Analysis
Purdue University

Background Paper for the GTAP Advisory Board Meeting
Lübeck, Germany, June 6-7, 2005

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CENTER FOR GLOBAL TRADE ANALYSIS

May 12, 2005

Dear Board Members,

This year has been a very successful year for the Center. At the end of December 2004 the final version of the GTAP 6 Data Base was released to the board and in late April the CDs arrived and are currently being sent to purchasers of the GTAP 6 Data Base. Version 6 represents a huge step forward in the coverage and quality of both the international datasets and regional data used in the GTAP 6 Data Base. The data base is expected to be an important tool for individuals and institutions wishing to examine the Doha round of negotiations. Betina Dimaranan and Robert McDougall have done an excellent job bringing the Data Base to fruition.

In this document we report on the changes made this year and look towards the future releases of the GTAP Data Base. At the board meeting Betina Dimaranan will be presenting a number of alternative release strategies for consideration and Robert McDougall will be presenting his ideas on work still to be done on the services, taxes and energy data.

Demand for analysis of environmental issues is still growing and in accordance with our strategic plan the Center continued its research in this area. Huey-Lin Lee finalized her report to the EPA on a new Land Use Model and Data Base. Wallace Tyner and Huey-Lin have also begun to develop a working relationship with Purdue's Climate Change Research Center, a Center set up to promote and assist interdisciplinary work on environmental issues.

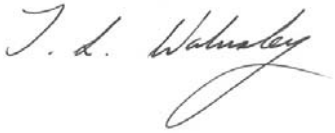
Half way through the year Melanie Bacou left the Center to return to Europe. We were extremely fortunate to find a very capable replacement, Ginger McColley. All our fears were allayed as she quickly picked up the conference organization and web course where Melanie had left off. As in the past Judy Conner has continued to ensure that each day the Center has remained on course. Her support of the Center and its activities has been greatly appreciated.

We were also pleased to announce that two new consortium members joined us this year – John Beyer from Nathan Associates and Hakim Ben Hammouda from the UN Economic Commission for Africa. We also hope that Frank Harrigan from the Asian Development Bank will be joining the consortium and a representative from there will join us at the Board meeting. These new members have already begun participating in GTAP activities, offering to host conferences and assisting with potential courses and we look forward to collaborating with them further.

As many of you know this year was also extraordinary because Thomas Hertel, founder of GTAP, took his long awaited sabbatical at the World Bank. Going into the year everyone was a little apprehensive about how things would work, however there is no better test of a team than having to continue without its leader and I believe we all came through with flying colors.

As you will see in the following document, the GTAP team has continued to work towards its goals of improving the GTAP Data Base, undertaking quality research, improving educating and building the GTAP network. I hope you enjoy reading what we have done and our thoughts on the years ahead. We look forward to discussing these issues with you at the Board Meeting in Lübeck, Germany.

Yours Sincerely,



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Center for Global Trade Analysis Advisory Board Meeting June 6-7, 2005
Lübeck, Germany

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SCHEDULE FOR GTAP ADVISORY BOARD MEETING:
JUNE 6-7, 2005 - Lübeck, Germany

Monday, June 6: Board room

9:00 - 10:15am **Welcome and Overview**

- **Introduce New Members and New Staff (30 min)**
  - Thomas Hertel
- **Overview of Agenda and Last Year's Action Plan (30 min)**
  - Terrie Walmsley

Discussion (15 min)

10:15 - 10:45am **Coffee Break**

10:45 - 12:00pm **Discussion of GTAP Data Base Release Strategies**

- **Overview of the General GTAP Data Cycle and Release Policies (20 min)**
  - Betina Dimaranan
- **Alternative Strategies (20 min)**
  - Betina Dimaranan

Discussion (35 min)

12:00 - 1:30pm **Lunch**

1:30 - 3:30pm **Top Data Base Issues**

- **Services (15 min)**
  - Robert McDougall

Discussion (15 min)

- **Taxes (30 min)**
  - Robert McDougall

Discussion (30 min)

3:30 - 4:00pm **Coffee break**

4:00 - 5:00pm **Environmental Data and Modeling**

- **Energy (15 min)**
  - Robert McDougall

Discussion (15 min)

- **Land Use (20 min)**
  - Huey-Lin Lee

Discussion (10 min)

7:00pm **Dinner at "Wullenwever "**

Tuesday, June 7: Board room

8:30 - 9:10am	**Finances**
	• **Budget, Policies and Staff Plan (20 min)**
	- Wallace Tyner
	• **Discussion (20 min)**
9:10 - 10:00am	**Network and Education**
	• **Developing Country Plan (20 min)**
	- Wallace Tyner
	• **Discussion (30 min)**
10:00 - 10:30am	**Coffee break**
10:30 - 12:00pm	**Discussion of Other Data Base and Research Priority Issues**
12:00 - 1:30pm	**Lunch**
1:30 - 3:00pm	**Network and Education**
	• **Research Fellows Report (10 min)**
	- Will Martin
	• **Report on Conference 2005 (10 min)**
	- Martina Brockmeier
	• **Report on Conference 2006 (10 min)**
	- UNECA
	• **Conference 2007 Proposals (10 min)**
	- Thomas Hertel
	• **Discussion (50 min)**
3:00 - 3:30pm	**Coffee break**
3:30 -4:30pm	**Revisit Action Plans and Priorities for Forthcoming Year**
	- Betina Dimaranan
4:30 -5:00pm	**Wrap-up and dates for next year's meeting**
	- Terrie Walmsley
7:00pm	**Dinner at "Brauberger"**

I. Mission, Vision and Goals

Our Mission

The Center for Global Trade Analysis is the publicly funded, university-based home for GTAP (Global Trade Analysis Project), a global network of researchers and policy makers conducting quantitative analysis of international policy issues. Our purpose is to improve the quality of global economy-wide analysis through education and by developing analytical data bases, economic models, and innovative methodologies. Our unique institutional structure enables us to foster collaboration among academia, public sector, and private sectors worldwide.

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 2014, 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. The open-source institutional arrangement by which the Data Base is now assembled has spawned rapid growth, with active collaboration in more than 100 countries. It is now possible for national agencies in any one of those countries to scrutinize key assumptions, rebuild the Data Base, and propose modifications to the official GTAP Data Base. Half of our courses are now conducted in developing countries. The 50 consortium members meet regularly through teleconferences to contribute ideas and to help keep the Center's efforts focused on our vision.

A copy of the strategic plan developed in 2003/2004 is available on the website:
http://www.gtap.agecon.purdue.edu/about/plan.asp

Our Goals

To achieve our vision, we are working toward the future with five goals.

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

Multilateral and Bilateral Trade Agreements

1. Further develop the Dynamic GTAP model.
2. Improve treatment of trade preferences and their utilization.
3. Enhance analysis of trade agreements' treatment of foreign investment in services.
4. Enhance analysis of labor migration.

Global Environmental Issues

1. Enable integrated assessment of climate change mitigation policies in an economy-wide setting.
2. Develop a dynamic framework that characterizes land use and net green house gas emissions in agriculture and forestry.
3. Develop an IPCC-consistent emissions baseline.

Trade and Development

1. Enable household-disaggregated analysis within the GTAP framework.
2. Encourage network members to contribute household surveys to the GTAP Data Base, and conduct trade/development analysis for their respective economies.

***Data Goal*: To Improve Data Products.**

1. Improve data quality and user service.
2. Improve data procurement.
3. Improve data development efficiency and quality by distributing data construction program.
4. Expand scope of data base.
5. Improve marketing of data base.

***Education Goal*: To Expand and Improve Global Economic Analysis Education Worldwide (both within and outside the network).**

1. Promote learning among data base contributors.
2. Use workshops and web-based products to provide specialized learning.
3. Improve communication, learning, and transfer of knowledge within the Center.
4. Improve marketing of GTAP courses.

***Model Goal*: To Improve Understanding And Credibility Of The GTAP-Based Models.**

1. Enhance testing and evaluation of the GTAP-based models.
2. Further enhance the ability of users to understand and explain model results *(long range).*

***Network Goal*: To Increase Effective Participation in the Global Network, Particularly In Developing Countries.**

1. Obtain funding from donor agencies for developing country participants.
2. Conduct more courses and conferences in developing countries.
3. Review pricing to enable greater developing country participation.
4. Foster communication within the GTAP network and beyond.

II. Center Staff, Graduate Students and Visitors

Center Staff

Judy Conner, Administration and Program Manager
Judy oversees the logistics, sales and marketing of GTAP courses, conferences, board meeting, software and the GTAP Data Base.

Betina V. Dimaranan, Research Economist and GTAP Data Base Administrator
Betina led the overall management and construction of version 6 of the GTAP Data Base. Betina is currently working on the documentation of version 6.

Thomas Hertel, Executive Director
Tom is on sabbatical this year. He is currently in Washington D.C. at the World Bank, working with Alan Winters on a new book titled Putting Development Back into the Doha Agenda: Poverty Impacts of a WTO Agreement. When he returns he will focus on strategic issues and new research directions for the Center.

Huey-Lin Lee, Environmental Economist
Huey-Lin is working on an extension to the GTAP models (both static and dynamic) and Data Base to include land use. She is also participating in the Energy Modeling Forum's land use sub-group, focusing on the cost of climate change mitigation. Huey-Lin also worked with Robert McDougall to improve the version 6 energy data.

Ginger McColley, Information Technology Specialist
Ginger started at the Center in December 2004. She oversees the GTAP Website, data bases and on-line courses.

Robert McDougall, Deputy Director
Robert works on special projects which significantly improve the GTAP Data Base and models. This year he was responsible for improvements in government consumption, taxes and services trade data; and worked with Huey-Lin to improve the energy data.

Wallace Tyner, Co-Director
This year Wally worked closely with the Moroccans to assist them with their FTA negotiations with the United States. He is keenly interested in increasing developing country involvement in trade policy analysis using GTAP. He has also forged a new relationship between GTAP and Purdue's new Research Center for Climate Change.

Terrie Walmsley, Co-Director
Terrie oversees the day-to-day management of the Center. She is also working on the Dynamic GTAP model in addition to extending GTAP to deal with international labor migration.

Visiting Scholars

Chris Parsons Sussex University, United Kingdom, January – March 2005
Chris is currently working with Terrie to build a bilateral labor migration data base and model.

Sandra A. Rivera USITC, USA, November 2003 – November 2004
Sandra led the Center's strategic planning efforts. Sandra also assisted with courses and worked on the Dynamic GTAP model.

Graduate students (country of origin)

Syud Amer Ahmed (Bangladesh)
Amer worked on a report to assess the quality of the GTAP I-O tables and on the development of a bilateral labor migration model and data base.

Alla Golub (Russia)
Alla has been undertaking research with the Dynamic GTAP model. She is currently using econometric techniques to estimate the convergence parameters that govern international capital mobility in that model. She has recently begun work on a DOE-funded project involving the dynamic analysis of climate change policy.

Jason H. Grant (Canada)
Jason Grant has been working with Betina Dimaranan and Thomas Hertel to examine the CEPII protection data and compare this with protection rates and bilateral preferences for the UNCTAD database, Paul Gibson's AMAD database and MAcMaps.

Jan Hagemejer (Poland)
Jan has been closely involved in the production of version 6 of the GTAP Data Base. Jan assisted Robert by preparing the income and endowment tax data for version 6 and later the services trade data for inclusion in a future version of the GTAP Data Base.

Maros Ivanic (Slovakia)
Last September, Maros completed his Ph.D. dissertation and joined a World Bank research project that analyzes poverty impacts of a prospective Doha round of trade liberalization. His role is to identify the most poverty-friendly trade policy reforms.

Roman Keeney (United States)
Roman has been working on GTAP-AGR a specialized model version of the GTAP model for examining agricultural policies. Roman has just accepted an Assistant Professorship in the Department of Agricultural Economics at Purdue University where he will be working on household level research issues.

Vitaly Vladimirovich Kharitonov (Russia)
Vitaly worked on a project, funded by the OECD, to investigate the impact of Russia's WTO Accession. Vitaly also created GEMPACK programs to extract SAMs from the GTAP Data Base and complement Technical Paper 22. Currently Vitaly is examining how to incorporate quality into the GTAP model,

Carlos Ludena (Ecuador)
Carlos has been conducting research on the international convergence of agricultural technology. In addition he has been assisting the Center with I-O tables. With Sara Wong, he contributed Ecuador and is now working on Bolivia. These countries will be incorporated into v6.1 of the GTAP Data Base.

Yoko Uchida (Japan)
Yoko Uchida recently joined the Center for Global Trade Analysis, where she is on leave from the IDE in Japan. She has a great deal of experience with I-O tables and will be assisting Terrie Walmsley with contributors.

Ernesto Valenzuela (Ecuador)
Ernesto has been working conducting research related to agricultural price volatility and poverty, as well as devising approaches for validating the GTAP model against historical data. He is presently on assignment with Kym Anderson at the World Bank.

Visitors to the Center

Ricardo Arguello, Universidad del Rosario / Cornell University, Colombia

Leena Kerkela, VATT, Finland

Haluk Kasnakoglu, FAO, Italy

Rod Tyers ANU, Australia

Kenneth Pearson, CoPS, Monash University, Australia

Frank van Tongeren, LEI, The Netherlands

Marinos Tsigas, USITC, Washington D.C., USA

Mark Gehlhar, ERS/USDA, Washington D.C., USA

Board Members

A list of the board members attending the Advisory Board meeting in Lübeck, Germany and their organization follows. Copies of the agencies advisory board reports are attached in the supplementary material provided in your folder.

III. Objective, Goals and Accomplishments

Assessment of Action Plan for Past Year

The goals for the past year, as laid out at the 2004 GTAP board meeting summary, are listed below, along with an assessment of our progress towards accomplishing these goals. (A complete summary of last year's board meeting is available from the consortium page of the GTAP Website):

http://www.gtap.agecon.purdue.edu/events/Board_Meetings/2004/Summary.pdf

1. **Develop a systematic approach to budgeting and link this to the Strategic Plan.**

Assessment: A budget and a staff plan have been developed and these will be presented at the board meeting.

2. **Data Goal: Incorporate MAcMap protection data base into the GTAP 6 Data Base. Technical Paper on MAcMap protection in the GTAP Data Base.**

Assessment: Following the discussion at last years board meeting Betina Dimaranan has worked with CEPII to incorporate the MAcMap protection data into v.6 of the GTAP Data Base. A new version of the MAcMap documentation is available at:

http://www.gtap.agecon.purdue.edu/resources/res_display.asp? RecordID-1670

3. **Data Goal: Examine ways in which the source data for MAcMap can be made available for replication and scenario building.**

Assessment: MAcMap data have been procured (thanks to the World Bank and the US-ITC for their leadership and funds for this acquisition) and shared with consortium members for replication purposes. A set of pre-specified Doha scenarios (about 10) are being put on the website presently. We are waiting for CEPII to release the tariff bindings -- then others will be able to design their own scenarios.

4. **Data Goal: Release the GTAP 6 Data Base and documentation. Including the dissemination of summary country tables on the web.**

Assessment: Documentation for GTAP 6 is available on the Website at:

http://www.gtap.agecon.purdue.edu/databases/v6/v6_doco.asp

5. **Data Goal: Incorporate bilateral services trade data into the GTAP Data Base**

Assessment: Services trade data was updated to 2001 using the IMF Balance of Payments Statistics. However, bilateral services trade data could not be incorporated into v.6 of the GTAP Data Base. Robert McDougall plans to work with the CPB to incorporate bilateral services data.

6. **Data Goal: Examine possibilities for collaboration between FAO and GTAP on Agricultural I-O relationships**

Assessment: Haluk Kasnakoglu visited the Center on September 14, 2004 to discuss their plans for changing the structure of data collected and obtain our feedback.

7. **Data Goal: Incorporate self employed labor into GTAP Data Base**

Assessment: Self employed labor was not incorporated into the GTAP 6 Data Base. However this and making changes to the way in which value added from the contributed I-O tables is replaced are agenda items for the GTAP 7 Data Base.

8. **Data Goal: Technical Paper on incorporating domestic wholesale/retail/transport margins into GTAP model and Data Base**

Assessment: Everett Peterson will be presenting the latest version of this work at the GTAP conference. He is currently editing this Technical Paper to take into account changes suggested by the three reviewers. We expect the paper will be made available on the website as part of the GTAP Technical Paper series in July, following the conference.

9. **Data goal: Incorporate the IFPRI/UNDP social accounting matrices for Latin American into the GTAP 6.1 Data Base.**

Assessment: There has been a lot of activity on incorporating new regions. Paolo Giordani from the IADB reports that work on converting the IFPRI/UNDP SAMs into GTAP format has started. Carlos Ludena, a graduate student at the center has also been working with individuals in Ecuador and Bolivia to incorporate these countries into interim release 6.1. The World Bank has contributed Pakistan and UNECA (through the African Trade Policy Centre) has contributed Nigeria and is working on a further set of countries from Africa.

10. **Data Goal: Continue to improve the quality of national I-O data through the creation of user-friendly check programs and the review of current and missing I-O data.**

Assessment: A report has been produced by Amer Ahmed and Terrie Walmsley examining the quality of the current I-O data in the GTAP Data Base and investigating countries which are not in the GTAP Data Base. As a result of this report we now have a list of "GTAP's Most Wanted" I-O tables. This report also emphasizes the need to update old tables. Check programs and other useful programs for I-O contributors are available on the website with improved documentation for potential users. Over the next year Ginger McColley and Terrie Walmsley will examine ways in which these can be made available in a user friendly way.

http://www.gtap.agecon.purdue.edu/databases/contribute/programs.asp

11. **Data Goal: GTAP Technical Paper on the SAM aggregation program**

Assessment: The Technical Paper and GAMS programs from Scott McDonald are now available on the web. Vitaly Kharitonov and Terrie Walmsley also created GEMPACK programs which are also available on the Website.

12. **Data Goal: Develop a systematic approach to examining, reporting and improving the quality of the international datasets in the GTAP Data Base**

Assessment: Jan Hagemejer and Robert McDougall have produced a program to examine and compare the energy and services datasets. Reports on these datasets are included in the GTAP 6 Data Base documentation.

http://www.gtap.agecon.purdue.edu/databases/v6/v6_doco.asp

13. **Data Goal: Report on "Lessons learned" to improve timeliness of v7 or distinguish between data improvements and production of versions.**

Assessment: Many of the delays to the release of the GTAP 6 Data Base may be traced back to problems obtaining external data inputs upon which the construction process relies. Betina Dimaranan is currently working on a plan for interim releases of GTAP 6 Data Base and the release of GTAP 7 Data Base. This will be discussed at the Board meeting.

14. **Research Goal: Refine and document Dynamic GTAP model in anticipation of a dynamic modeling short course.**

Assessment: Although the short course on the Dynamic GTAP Model did not attract sufficient participants to warrant holding a course in the fall of 2004, significant progress has been made

refining and documenting the GTAP-Dyn model. In collaboration with Elena Ianchovichina from the World Bank, we are putting together a book on the Dynamic GTAP model. An outline of the book is provided in Appendix 1 and other materials will be provided on a CD at the Learning Session on the Dynamic GTAP model, on the last day of the conference. If there is sufficient interest following this learning session, we will schedule another course. If you are interested in attending this free learning session, please register at:

http://www.gtap.agecon.purdue.edu/events/Dynamic_Courses/2005/default.asp

15. **Model Goal: Workshop on parameter estimation and encourage research aimed at model validation. With funding from the USITC and organized by Joe Francois**

Assessment: Unfortunately this workshop did not occur. We hope to hear from Joe Francois and Robert Koopman at the board meeting on progress.

16. **Model Goal: GTAP Technical Paper on adjustment costs**

Assessment: We are currently examining ways in which a graduate student can be brought in to work with Joe Francois to assist with this technical paper. There is also a special session on adjustment to trade reforms at the GTAP conference this year -- organized by Kym Anderson.

17. **Network Goal: Improve marketing of GTAP products through brochures and other Websites.**

Assessment: Wally Tyner has taken the lead on producing a brochure outlining the Center's activities. This brochure will be made available shortly.

18. **Network Goal: Review pricing policies and other methods available for funding outreach to developing economies.**

Assessment: Outreach to developing economies has progressed on a number of fronts this year. The 2006 conference will be hosted by UNECA in Ethiopia and the I-O table coverage in developing economies has also improved markedly. During the board meeting we will discuss a proposal to provide more differential pricing for developing country purchasers of the data base and possibilities for enhancing developing country participation in short courses and conferences.

19. **Network Goal: Aid in facilitation of 8th annual conference on Global Economic Analysis to be held in Lübeck, Germany, June 9-11, 2004**

Assessment: Martina Brockmeier has done an outstanding job of organizing the 8th Annual Conference in Global Economic Analysis. The conference committee has assisted her with development of the program and Martina and her team have worked closely with Ginger McColley on the website and registration and paper submission process. Martina Brockmeier, Ginger McColley and Terrie Walmsley have also been working on ways in which we can document and improve the current website to assist future conference hosts.

20. **Education Goal: Hold annual GTAP Short Course in Purdue in August 2004**

Assessment: The GTAP Short Course in August 2004 was again a success thanks to Judy Conner and all the instructors.

21. **Education Goal: Hold Dynamic GTAP short course in Purdue in October 2004**

Assessment: Unfortunately the short course in the Dynamic GTAP Model did not attract sufficient participants to warrant holding a course. A learning session has been scheduled to follow the 8th Annual Conference in Global Economic Analysis to market the model and gauge future interest.

Assessment of Key Issues from last year's Board Meeting: Tariff Protection and Data Quality

Tariff Protection

Protection was a very important topic at the board meeting last year. At the 2004 board meeting, after a comparison of the advantages and disadvantages of alternative datasets (AMAD, MAcMaps, and UNCTAD data through WITS) the decision was made to incorporate MAcMaps into the GTAP 6 Data Base.

After the board meeting, further discussions occurred on the merits of the reference group-weighting scheme and ordinary trade-weighting. Following this discussion it was decided that trade-weighted ***preferential rates*** data on *ad valorem* tariffs (including tariff rate quotas) plus the *ad valorem* equivalents (AVEs) of specific tariffs would be used.

Details of the discussion and the decisions taken at the past Board Meeting, as well as the additional notes from Robert McDougall and Sébastien Jean about the pros and cons of using alternate weighted schemes can be found on the website at:

http://www.gtap.agecon.purdue.edu/access_board/tariff_discussion.asp

Summary data files, pre-processed at the Center and aggregated to the GTAP sectoral and regional classification, are provided by the center to board members.

http://www.gtap.agecon.purdue.edu/access_board/v6_doco.asp

An important concern among board members was their access to the underlying MAcMap source data. Fortunately, this was resolved in the wake of the board meeting, with the US-ITC and the World Bank putting up the funds necessary to make these data available to all consortium members.

The MAcMap data have subsequently been used by several major research projects aimed at assessing the impact of a prospective Doha Development Agenda. The underlying scenarios developed by CEPII for these purposes are being made available on the GTAP Website for others to use as well. With the anticipated release of CEPII's companion data base on bound tariffs, others will be able to build their own scenarios.

Data Quality

Quality was again raised as an important issue at the board meeting last year.

Quality Checks on I-O Tables

In terms of I-O tables the Center 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 and are reported here:

1. A website has been set up to assist contributors. See:

http://www.gtap.agecon.purdue.edu/databases/contribute/default.asp

2. Terrie Walmsley has been given the task of communicating with contributors, checking I-O tables and preparing reports on all recently contributed I-O tables. These reports are available on the web to board members and contributors.

http://www.gtap.agecon.purdue.edu/access_board/IO_reports.asp

3. A report on a) the quality of existing I-O tables; and b) which countries the Center should be focusing on obtaining new contributions, has also been produced and is provided in the supplementary materials enclosed in your folder and is also available on the website.

http://www.gtap.agecon.purdue.edu/_private/secured.asp?Sec_ID=291

Quality Checks on Other Incoming Data Bases

Robert McDougall has developed an entropy theoretic method for examining the quality of large incoming international datasets. This method calculates and ranks differences between datasets which can then be used to highlight unexpected shares in incoming datasets. He used this approach in comparing the merchandise trade dataset for GTAP 6 with that used in GTAP 5 and also to compare different versions of the trade dataset contributed by Mark Gehlhar for GTAP 6.

Robert will be presenting a paper on this technique, entitled "Entropy-Theoretic Algorithms for Analysis and Comparison of Large Data Arrays", at the conference. The results of these checks on the energy and trade in services datasets are included in the GTAP 6 Data Base documentation.

http://www.gtap.agecon.purdue.edu/databases/v6/v6_doco.asp

Quality Checks on Final Data Base

The fit statistics, discussed at previous Advisory Board meetings are now produced as part of the GTAP 6 Data Base construction process. These statistics are an information-theoretic measure of the extent to which the FIT program alters the domestic data bases. At the 2003 advisory board meeting Robert McDougall provided a national-level summary of these statistics to the board. The results were found to be generally quite sensible, with those economies represented by outdated I-O tables, or as composite regions, and those economies with extensive re-exports requiring the greatest amount of change in FIT. These statistics are now included in the GTAP 6 Data Base documentation.

http://www.gtap.agecon.purdue.edu/databases/v6/v6_doco.asp

Action Plan for forthcoming year

The following is a preliminary list of action plans for the forthcoming year:

1. Data Goal: Examine ways in which the source data for MAcMap and the associated tariff bindings can be made available for replication and scenario building.	TH and BD with Sebastien Jean
2. Data goal: Incorporate new I-O tables into interim release of the GTAP Data Base	BD and TW
3. Data goal: Incorporate new energy data into the GTAP Data Base	BD, RMD, HL
4. Data Goal: Incorporate bilateral services trade data into the GTAP Data Base	BD and RMD
5. Data Goal: Adjust the division of value-added between capital and labor to take into account self-employed labor.	BD and TH
6. Data Goal: Update the literature survey done by Hertel and Tsigas on the primary factor shares in agriculture.	BD and TH
7. Data Goal: Continue to improve the quality of national I-O data through the creation of user-friendly check programs	TW and GM
8. Data Goal: Review existing I-O tables and identify common problems	RMD
9.Data Goal: Release of GTAP Data Base on in a GAMS-friendly version of the GTAP Data Base	RMD and BD with Alex Meeraus
9. Data Goal: Critically review and revise methods for filling in missing data	RMD and BD
10. Data Goal: Paper on GTAP Data Base comparison programs	RMD
11. Data Goal: Begin data and program separation in construction process	RMD and BD
12. Data Goal: Develop facility for disaggregating commodities (SplitCom).	Mark Horridge with input from RMD
13. Data Goal: Technical Paper on MAcMap protection in the GTAP Data Base.	Sebastian Jean
14. Data Goal: Appraise the available GFS statistics on commodity tax data and compare and contrast with the existing GTAP I-O based estimates	RMD and BD
15. Research Goal: Refine and document Dynamic GTAP model and update the GTAP-Dyn baseline.	TW and AG
16. Validation Goal: Validation of GTAP-Dyn parameters	TW and AG
17. Education Goal: Improve marketing of GTAP products through brochures.	WT and TH
18. Network Goal: Implement Developing Country Plan	WT, TW and JC
19. Network Goal: Aid in facilitation of Ninth Annual Conference on Global Economic Analysis to be held in Ethiopia, June 2006	GM, TW, JC and TH
20. Education Goal: Hold Thirteenth Annual GTAP Short Course in Crete, Greece in June 2005	TW, JC, BD, TH, HL
21. Education Goal: Hold special GTAP Short Course in Mumbai, India provided funding comes through.	TW, JC, TH, RMD
22. Center Goal: Look for a researcher in the environmental area to work on special projects	WT, TH, HL, TW

Note on the Agenda

This year we gathered feedback from board members on how the board meeting agenda could be altered to improve the meeting. Although we could not implement all of the suggestions there were a number of common suggestions which we have tried to adopt. These suggestions include:

- Eliminating or significantly changing the verbal reports made by the board members at the board. It was suggested that board members read the reports prior to the meeting and that the meeting itself focus on future priorities of these agencies.
- It was generally felt that there should be less time devoted to presentations and more to discussion. Presentations should focus on the highest priority issues in which there was something new to say. Other issues should be placed in a 'parking lot' for discussion if there was time.
- It was generally felt that the discussion should be more strategic and that the budget discussions were important. It was also suggested that we use the strategic plan as a way of organizing the agenda.
- Another issue raised was the problem that not all issues were of interest to everyone. Suggestions were made that sub-groups/committees be established or that these items be grouped and presented together.

As you will see from the agenda, day one is devoted to the Data and Research goals. We have selected a few of the top issues in data and research: Data Base release strategies, taxes, services, energy and the Land use research.

On the morning of day two there is a discussion of the budget and the staffing plan, followed by the proposed developing country plan. From 10:30 a.m. to noon we have scheduled a general discussion of Other Data Base and Research Priority Issues. There are no presentations during this period and the time will be devoted to discussing any outstanding priority issues. It is also a time for board members to express their own priorities. We hope that all board members will contribute. Areas which board members might be interested in pursuing during this session are listed in Appendix 2. Note that this is not meant to be an exhaustive list. After lunch the board will review the research fellows and conferences. Finally the meeting will conclude by revisiting the Centers goals and priorities for the year. We welcome any comments or suggestions you may have on the agenda.

IV. The GTAP Data Base

A Brief History of the Development of the GTAP Data Base

The GTAP Data Base consists of bilateral trade, transport, and protection matrices that link individual country/regional economic data bases. The regional data bases are derived from individual country input-output tables, from varying years.

The GTAP 1 Data Base relied exclusively on I-O tables inherited from the Australian Industry Commission's SALTER project. For this reason, GTAP adopted the SALTER concordance that identified 37 sectors/commodities.

In GTAP 3 Data Base, 12 of the 24 national data bases still traced their roots back to the Industry Commission's SALTER project. Of course they were updated for each new release using the FIT program[1]. These I-O tables were heavily concentrated in the Pacific Rim, reflecting SALTER's focus on APEC issues.

Six of these twelve SALTER inherited regions were updated in version 4 (New Zealand, China, Indonesia, Thailand, Taiwan, and Canada). This left old I-O tables only for Japan, Korea, Malaysia, Philippines, Singapore, and Hong Kong. In addition to these updates of the original SALTER I-O tables, version 4 featured updates of four more existing regional data bases, as well as entirely new data bases for 14 countries (Vietnam, Sri Lanka, Venezuela, Colombia, Uruguay, UK, Germany, Denmark, Sweden, Finland, rest of EU, Turkey, Morocco and South Africa). In version 4 the number of sectors was also expanded to 50 to include more agricultural sectors. A special project on energy and climate change led to the creation of the first GTAP Data Base with improved treatment of energy and carbon emissions. The result was the GTAP-E Data Base.

Version 5 updated 16 national data bases (Australia, China, Japan, Korea, Taiwan, Vietnam, India, Colombia, United States, United Kingdom,) and added 23 more countries (including 15 EU countries contributed by the LEI and EU Commission, 7 Southern African countries contributed by Mark Horridge, DFID and IFPRI and Bangladesh). A system of interim releases was also established to allow new I-O tables to be incorporated into the Data Base as they were contributed. During these interim releases no changes were to be made to the macro data, the only difference would be the disaggregation of a region to incorporate the new country I-O data. Interim releases of version 5 have added 13 more countries in Central and Eastern Europe (contributed by Martin Banse and EU Commission), Albania (contributed by Mark Horridge and US Department of Commerce) and Russia (contributed by US ITC and Sergey Kieslev, Moscow State University). Malaysia, the Philippines, Singapore, Indonesia and Thailand were updated in version 5.3, based on data from the Institute for Developing Economies (IDE) in Japan. This leaves Hong Kong as the last remaining I-O table inherited from SALTER. Since there is no actual I-O table in existence for Hong Kong, this had to be “fabricated” by SALTER staff. We may wish to contemplate a change in the treatment of Hong Kong in the future – possibly re-estimating this I-O table, or eventually combining Hong Kong with China. Input from the board on this issue would be welcome. In version 5 the number of sectors was further increased to 57, this time services were disaggregated. The treatment of energy was also further improved and incorporated into the primary GTAP Data Base.

[1] The FIT program lies at the heart of the GTAP Data Base construction process. FIT uses entropy theoretic methods to update and create a consistent data base, where all the data - Input-output tables, trade, protection, macro and energy - are consistent with each other. It is this consistency which is the core value-add of the GTAP Data Base.

In version 6, 2 new countries were added, Madagascar (pre-release 2) and Tunisia (pre-release 3), and 11 other I-O tables were updated (Argentina, Australia, New Zealand, Singapore, India, Colombia, Brazil, Korea, The Netherlands, Turkey and Taiwan). All of these updated I-O tables are significant improvements on previous contributions in terms of a more recent I-O table being used or in the case of Singapore additional external data being used to disaggregate. With the exception of the IDE tables, the original I-O tables are all available to consortium members on the GTAP Website.

http://www.gtap.agecon.purdue.edu/access_board/IO_tables.asp

The remaining 18 regions in the 87 regions of GTAP 6 Data Base are made up of composite data bases representing groups of countries. In light of recent requests the number of composite regions was increased in version 6 to allow for more accurate analysis of regional free trade agreements. As a result the 10 old composite regions have been sub-divided into 18 new composite regions.

The tariff data for the GTAP 6 Data Base also changed significantly in terms of sourcing, coverage, nature and quality, and data processing. In version 5 of the GTAP Data Base, agricultural tariffs and merchandise tariffs were obtained from the two separate sources. Agricultural tariff data were obtained from the Agricultural Trade Policy Database which is based on the Agricultural Market Access Database (AMAD) while data on merchandise tariffs were obtained from the World Bank and UNCTAD through an early version of the World Integrated Trade Software (WITS). In version 6 the tariff data was supplied by the Market Access Maps (MAcMap) contributed by the Centre d'Etudes Prospectives et d'Information Internationales (CEPII). The MAcMap data base is compiled from UNCTAD TRAINS data, country notifications to the WTO, AMAD, and from national customs information. More information on the MAcMaps data base can be found on the web at:

http://www.gtap.agecon.purdue.edu/access_staff/resources/res_display.asp?RecordID=1670

Review of the Data Goal

The Data Goal is to improve data products. Five strategies aimed at achieving this goal are listed below. The action plans that were laid under these strategies cover activities for many years. Several of them entail working through each of the different modules or segments in the entire data base construction process to review and revise existing methods of evaluating and comparing incoming, intermediate, and final datasets and to review and revise methods for filling in missing data. Tasks such as regularly reviewing data procurement policies and data release policies will be done every two years. Several action plans are scheduled to commence in 2006, in conjunction with the start of the GTAP 7 Data Base cycle.

1. Improve Data Quality and User Service.

The development and application of comparison programs is one of the measures by which we aim to improve data quality. This year, Robert McDougall developed and implemented an entropy-theoretic system for comparing large international datasets. He used this approach in comparing the merchandise trade dataset for the GTAP 6 Data Base with that used in the GTAP 5 Data Base and also to compare different versions of the trade dataset contributed by Mark Gehlhar for the GTAP 6 Data Base. This was found to be useful in systematically identifying unusual data flows in large data sets. Observations on unusual data changes are then conveyed to the contributor for comment. We intend to extend the use of this approach in evaluating other international data inputs and intermediate datasets. Robert will present a paper on entropy-theoretic algorithms for the analysis and comparison of large data arrays in the conference.

Another measure geared towards improving data quality is the identification and creation of ad hoc expert groups for different aspects of the data base. There are various data base topics for which we can benefit from the knowledge of outside experts in evaluating the data. The process by which we decided on the tariff data base for the GTAP 6 Data Base and how the tariff data base was improved on in the subsequent pre-releases of GTAP 6 Data Base benefited from input from tariff data experts and users from among the consortium member agencies. Several members of the GTAP Advisory Board members and Center staff made a comparison of the advantages and disadvantages of alternative datasets (AMAD, MAcMaps, and UNCTAD data through WITS) at the 2004 board meeting and arrived at a decision to incorporate MAcMaps into the GTAP 6 Data Base. After the board meeting, with the help of notes separately developed by Sebastien Jean and Robert McDougall on the merits of the reference group-weighting scheme and ordinary trade-weighting, respectively, the advisory board members decided on the use of ordinary trade weights. Scrutiny and comments from Center staff and consortium member agencies on the MAcMap tariff data incorporated in the pre-releases of GTAP 6 resulted in two more revisions before the final version.

2. Improve data procurement.

One of the ways by which to improve data procurement is by reviewing existing I-O tables and identifying the countries for which new or updated I-O tables are most needed. This was done this year by Amer Ahmed and Terrie Walmsley. Their work in identifying the most wanted I-O tables is discussed in the section on I-O tables below. Amer and Terrie looked at the previously identified problems known to occur in the I-O tables. Robert McDougall plans to take this further this year by reviewing the I-O tables to see if there are any other common problems which have not yet been identified.

We also aim to establish relationships with potential contributors of non-I-O data. To this end, some Center staff met with Haluk Kasnakoglu, Director of the Statistics Division at FAO, to explore opportunities for possible collaboration. GTAP currently employs FAO data on commodity production and prices as inputs in constructing the agricultural input-output data that we use in disaggregating I-O tables which do not have the required level of agricultural disaggregation.

3. Improve data development efficiency and quality by distributing a data construction program.

The separation of data and programs is an essential step towards the strategy of improving data development efficiency and quality. This will entail substantial overhauling of the automated GTAP Data Base construction process. We hope to make great strides on this task this year before beginning work on the GTAP 7 Data Base.

4. Expand scope of database.

There are a number of ways by which we intend to expand the scope of the GTAP Data Base. These are by integrating taxes (income and commodity taxes); integrating data on self-employed labor data; including model-driven innovations; developing a multi-year data base; and developing a database with universal country coverage. Most of these activities are envisioned for the GTAP 7 Data Base at the earliest. This year, as a first pass, income and factor usage tax data from the IMF Government Finance Statistics was introduced in the GTAP 6 Data Base.

5. Improve marketing of database.

The packaging of the GTAP 6 Data Base CD-ROMs was improved to include more information about GTAP and the data product, installation instructions, and a reminder about the licensing agreement.

GTAP Data Base Release Strategies

Each GTAP Data Base Cycle begins with the shift to a new base year. This typically begins with updated macroeconomic data and merchandise trade data. As we assemble the different international datasets together, we make pre-releases of the data base available when we have put together a significant collection of new datasets and/or have introduced data for which some scrutiny/comments would be important. We also include domestic data bases (I-O tables) for existing regions and introduce I-O tables for new regions. Once we have updated all the international datasets to the new base year, we come up with the final release of the data base.

In the GTAP 5 Data Base cycle, we introduced a second track -- interim releases -- after the final release. The interim releases were designed to be exactly the same as the GTAP 5 Data Base except for the new regional coverage or updated I-O tables and were made available only to board members and data contributors. In order to ensure comparability across interim releases, we resolved then to consciously avoid fixing known problems in programs that will lead to significant changes in the international datasets. Thus, I-O tables for 13 new regions (CEECs, some Former Soviet Union, Russia, Albania) and 20 updated I-O tables (European Union, Southeast Asia) were introduced in the interim releases of the GTAP 5.1 Data Base through the GTAP 5.3 Data Base. We included all bug fixes in the last interim release, GTAP 5.4 Data Base. The bug fixes included revisions on certain aspects of the international data, e.g. removing intra-regional energy trade data, re-introducing zero agricultural export subsidy rates, reconciling tariffs for Botswana and the Rest of SACU, correcting the bilateralization of agricultural tariffs and export subsidy data to exclude intra-regional trade. With the concurrence of the advisory board, the GTAP 5.4 Data Base was released to the public (to pre-purchasers of the GTAP 6 Data Base) in November 2003.

The GTAP 6 Data Base (final version) was released to the GTAP consortium members in late December, 2004. Consistent with the policy of maintaining a three-month lag between the release of the data base to consortium members and to the general public, the GTAP 6 Data Base will be shipped in CD-ROMs to the public in late April. With the April 2004 public release of the GTAP 6 Data Base, it will be almost four years since the public release of the GTAP 5 Data Base in mid-2001.

Although we had 5 pre-releases of the GTAP 6 Data Base (from November 2003 to December 2004), there are two important aspects of the data which we originally intended to update but in the end were not able to do so in the interest of not delaying the final release by a several more months. First is the use of 2001 IEA energy price data instead of simply updating energy prices to 2001 using price indices. Although a significant overhauling of the energy module was done to use the IEA energy volume data, switching over to the IEA price data proved to be a more complex procedure that will require several more months of work. Second is the introduction of OECD data with bilateral data in services trade. Introducing data with bilateral detail in services has been an objective since the GTAP 5 Data Base. Additionally, after the board release of the GTAP 6, Data Base a mismatch between the classification of sugar in GTAP with that of the International Sugar Organization (ISO) was identified by Mark Gehlhar and Frank van Tongeren. This mismatch in the sugar classification is reflected importantly on sugar trade data. Mark Gehlhar has offered to revisit the sugar trade data using the ISO statistics as a guide to trade totals.

We are now ready to advance to the interim release stage of the GTAP 6 Data Base cycle. There are currently a number of I-O tables for new regions that we will incorporate in the interim release of the GTAP 6.1 Data Base scheduled for July 2005. However, in light of the issues

regarding energy prices data, bilateral detail in services trade, and sugar classification, we are rethinking our earlier policy on interim releases. In the GTAP 5 Data Base, to ensure comparability across data releases, the interim releases allowed only the inclusion of new and updated I-O tables but not revisions in the international datasets. In GTAP 4, however, the final release was followed by a GTAP-4E Data Base, a special public release of the GTAP 4 Data Base augmented with updated energy volume flows data. It is understandable that the various stakeholders would have differences in opinion on whether the interim release series should include only new and updated I-O tables or also include updates on the international data (for the same base year) and bug fixes. It is for this reason that we would like to solicit your feedback on alternative release strategies. The three proposed alternative release strategies are:

(1) Introduce only new and updated I-O tables in the GTAP 6 interim releases and delay revisions in the international datasets until the GTAP 7 Data Base.

(2) Introduce updates of international datasets such as the 2001 energy prices data, bilateral detail in services trade, and revised trade data reflecting revised classification of the GTAP sugar commodity and incorporate these in the interim release along the new and updated I-O tables.

(3) Introduce new and updated I-O tables in the interim release but have a separate data release stream for a potential update of the energy data. The latter data base, i.e. possibly named the GTAP-6E Data Base, will be made available to the public and will not include any new and updated I-O tables.

For further information on the data release strategies please see Appendix 3. We would like your feedback on these alternative release strategies that will be discussed in more detail by Betina Dimaranan at the board meeting.

Services

For the GTAP 6 Data Base, we introduced a new system for exploiting the IMF Balance of Payments Statistics for services trade. This source contains no bilateral detail. Within the next twelve months, we propose to make a first pass at incorporating OECD bilateral data.

Taxes

For the GTAP 6 Data Base, we introduced income and factor usage tax data, using IMF Government Finance Statistics. Commodity tax data pose a much larger task. A possible objective for the next twelve months is to appraise the available GFS statistics and compare and contrast with the existing GTAP I-O based estimates.

Energy

For the GTAP 6, we did a significant overhaul of the back end of our energy volume data construction process, and upgraded to the new IEA Detailed Energy Balances as our sole energy volumes data source. We now have a good system in place for the energy volume data, but the price data remain problematic. The old back end programs are so rigid, and their data requirements so specialized, that no full price data update has been done for the last few GTAP releases; instead we have done quick and dirty updates using scaling indices. A beginning was made in the GTAP 6 Data Base on revising the early stage processing of the energy price data. Within the next twelve months, we propose to complete this, adapt the back end to the new

improved IEA price data collections, produce a new data base with fully updated energy data, and offer it either to Consortium members only or to all GTAP 6 Data Base subscribers.

Factor Splits

We have not introduced any changes in primary factor splits in the GTAP 6 Data Base. Within the next year, we expect to draw on work done on the estimation of the division of value-added between capital and labor, taking account of self-employed labor, for household survey data from 15 developing countries. Additionally, the literature survey done by Hertel and Tsigas on the primary factor shares in agriculture has recently been updated by the World Bank, and this will be reflected in the new data base.

I-O tables

It was recently announced that contributors should send in their I-O tables by June 1, 2005 if they would like to be considered for inclusion in v6.1 of the Data Base, which is expected to be produced in July 2005. Since then there has been an influx of requests regarding contributions, particularly those wishing to include new countries in the GTAP Data Base. These requests have come from both organizations (primarily board member institutions) willing to fund projects; and from individual contributors wishing to improve analysis of their own countries and gain access to a receive a free copy of the Data Base and future interim releases.

New countries already contributed to GTAP 6.1 include: Pakistan (Mark Horridge and the World Bank), Nigeria (Mark Horridge and UNECA through the African Trade Policy Centre), Iran (Mark Horridge), and Ecuador (Sara Wong and Carlos Ludena). Mauritius (Sawkut Rojid). Bolivia (Sara Wong and Carlos Ludena), and Japan (Hirofumi Kawasaki) are also expected.

It is still uncertain whether the IFPRI/UNDP social accounting matrices for Latin America and the United States I-O table (US ITC) will be incorporated into the version 6.1 of the GTAP Data Base. Given the dominant size of the United States it is important that we ensure that this is updated as soon as possible.

Amer Ahmed and Terrie Walmsley recently wrote a report examining the I-O tables currently in the GTAP Data Base and examining those countries not yet included in the GTAP Data Base. The report is available in the supplementary material included in your folder and on the web.

From this report a "GTAP's Most Wanted" list was produced. The GTAP's most wanted list is actually two lists. The first is a list of those countries in the GTAP Data Base that are most in need of updating (column 1 of table below). Most of the countries in this list were contributed prior to version 5, are more than a decade old and are highly aggregated. The report also highlights the need to build relationships with contributors to ensure that I-O tables are updated.

Currently there are two types of contributors. The first type, are individual contributors (usually locals) who step forward and offer a GTAP-ready data base. This has been the predominant vehicle in the past[2]. These individual contributions are sometimes simply one-off exercises that are not repeated. However in most cases, having overcome the initial challenge of learning to create a GTAP ready I-O table and having established a relationship with GTAP, the contributor will update their contribution as new data becomes available. The second type are special projects

[2] There are basically three incentives for contributing to this public good: (1) this assures the user that they have the best available national data for their own country in any GTAP applications undertaken; (2) contributors receive a free copy of the final data base, as well as the pre-release, and all future interim releases related to the version to which they contribute; and (3) it's the right thing to do. (There are still some idealists out there!)

aimed to support some particular line of research or policy analysis. In version 5 we saw a significant increase in the number of these types of special projects. Although this vehicle is less likely to lead to an established relationship and regular updates, it is an important way of making significant improvements to the quality and coverage of the GTAP Data Base.

A second problem with maintaining relationships is that sometimes we secure two (or more) contributions for the same country. Our policy is to give both contributors access to the GTAP Data Base, however when one contributor is chosen over another invariably the unsuccessful contributor will not contribute again.

The second list includes the top 8 economies, by GDP and population, which are not in the GTAP Data Base (column 2 of the table below). The table produced below is actually the second version of this list which was adjusted when Pakistan, Nigeria and Iran were recently contributed to GTAP 6.1.

Countries most in need of Updating	**Top 8 Countries not in GTAP (by GDP & Population)**
Uruguay	Saudi Arabia
Mexico	Norway
Venezuela	Israel
Chile	Egypt
Peru	Ethiopia
Sri Lanka	Myanmar
Canada	Iraq
Morocco	Puerto Rico

Facility for Splitting Commodities (SplitCom)

The Center has been involved in discussions with Mark Horridge from the Center for Policy Studies on the possibility of a new user program, SplitCom, to support disaggregation of commodities in the GTAP data base. The program would accept user information on sector splits, and generate a new disaggregated, balanced data base. Users would have considerable flexibility in supplying more or less detailed split information. A copy of the proposal is provided in the supplementary material included in this folder and on the website.

V. Research

Review of the Research Goal

The research goal contains 3 parts related to three different areas of research which the Center is pursuing under its strategic plan: Multilateral and Bilateral Trade Agreements, Global environmental issues, Trade and development. Each of these is discussed in turn below.

Multilateral and Bilateral Trade Agreements

1. Further develop the Dynamic GTAP model.
2. Improve treatment of trade preferences and their utilization.
3. Enhance the analysis of trade agreements' treatment of foreign investment in services.
4. Enhance analysis of labor migration.

This year work has progress along two fronts: the Dynamic GTAP Model and Labor Migration.

Further develop the Dynamic GTAP model.

The Dynamic GTAP model, developed by Elena Ianchovichina and Robert McDougall, emphasizes international capital mobility and tracking cross-country ownership of assets (Technical Paper #17). A number of modifications were made to the Dynamic GTAP model during this year. Including a) updating the model to reflect changes in the GTAP model and b) incorporating additional equations which would prevent investment going negative during a simulation. The technique used to determine welfare and decompose welfare in the Dynamic GTAP model at a given point in time was also refined and documented

Considerable progress has been made gathering the chapters and applications for a book on the Dynamic GTAP model. An outline of the book is provided in appendix 1. It is hoped that this book will be available in early 2006. The model, the RunGDyn software for running the model, and the data aggregation program will be made available to those who take the short course.

We continue to maintain a shared baseline data base, which can be used by consortium members for their own dynamic modeling work. Some modification have been made to update this to v6 however the forecasts are now considerably outdated. We recently received some new forecasts and in the upcoming year Terrie Walmsley and Alla Golub will be updating the macro projection in the baseline. We also hope to incorporate some of the pre-experiment and Doha policy scenarios developed by CEPII using the MAcMap dataset.

Enhance analysis of labor migration.

Terrie Walmsley has been working with Alan Winters and the Development Research Center on Migration, Globalization and Poverty at Sussex University in the United Kingdom to develop a bilateral matrix of labor migration. Chris Parsons from Sussex University spent January to April 2005 at the Center for Global Trade Analysis refining the matrix and assisting Amer Ahmed and Terrie Walmsley to incorporate it into the GTAP Data Base. This matrix of bilateral labor migration is now complete and has been used to incorporate bilateral remittances into the GTAP Data Base and develop a new GMig2 model. The World Bank is also assisting with the development of the Data Base and in particular the incorporation of bilateral remittances. There will be a special session on this topic at the conference.

Global Environment Issues

1. Enable integrated assessment of climate change mitigation policies in an economy-wide setting.
2. Develop a dynamic framework that characterizes land use and net green house gas emissions in agriculture and forestry.
3. Develop an IPCC-consistent emissions baseline

Huey-Lin Lee finished the research project "Towards an Integrated Data Base for Assessing the Potential for Greenhouse Gas Mitigation", sponsored by the U.S. Environmental Protection Agency (US-EPA), on developing the GTAP land-use (LU) and greenhouse gases (GHGs) emissions data bases to support analyses of the linkage between land use changes and net GHG emissions from agriculture and forestry in Integrated Assessment (IA) of climate change. The GTAP GHGs Data Base includes non-CO2 greenhouse gas emissions—CH4, N2O, and Fluorinated gases (e.g., HFCs, PFCs and SF6). Emissions of these gases are linked to the underlying economic drivers. For example, CH4 emissions are linked to paddy rice growing and to ruminant livestock raising (due to enteric fermentation); N2O emissions are linked to crop growing sectors due to fertilizer use. The GTAP LU Data Base distinguishes 18 agro-ecological zones (AEZ) in the world and their use for agriculture and forestry. On top of the GTAP LU Data Base, we developed a new GTAP-based model—named GTAPE-AEZ—to address potential land use, land use change and forestry (LULUCF) activities which have been perceived as a relatively cost-effective option to mitigate GHG emissions induced climate change. The data bases and documentation are currently under review and comments by the Energy Modeling Forum's 22nd study (EMF-22) land use sub-group. The LU and GHGs data will be used by the EMF-22 land use sub-group to forecast emissions under various scenarios with land use change considered. The EMF-22 study report is aimed to be considered for incorporation in the Inter-governmental Panel on Climate Change (IPCC) Fourth Assessment Report. A copy of the LU/GHG data documentation is provided in the supplementary information available on the board website and CD. Huey-Lin and co-authors will also be contributing to the analysis of climate change policy using a dynamic version of the GTAP-AEZ model.

Trade and Development

1. Enable household-disaggregated analysis within the GTAP framework.
2. Encourage network members to contribute household surveys to the GTAP Data Base, and conduct trade/development analysis for their respective economies.

During his sabbatical, Tom Hertel has been working with Alan Winters at the World Bank on a major international research project investigating the poverty impacts of a potential Doha Development Agenda. The project utilizes both household surveys and the GTAP Data Base and model to focus on the poverty impacts of the Doha Round. The result is a book titled: “Putting Development Back into the Doha Agenda: Poverty Impacts of a WTO Agreement”.

The book combines in a novel way the results from several strands of research. Firstly, it draws on an intensive analysis of the DDA Framework Agreement, with particularly close attention paid to potential reforms in agriculture. The scenarios are built up using newly available tariff line data and their implications for world markets are established using a global modeling framework. These world trade impacts, in turn, form the basis for thirteen country case studies of the national poverty impacts of these DDA scenarios. The focus countries include: Bangladesh, Brazil (2

studies), Cameroon, China (2 studies), Indonesia, Mexico, Mozambique, Philippines, Russia, Vietnam and Zambia.

VI. Validation

Review of the Model Goal

The model goal is to improve understanding and credibility of the GTAP-based models.

1. Enhance testing and evaluation of the GTAP-based models.
2. Further enhance the ability of users to understand and explain model results.

1. *The Dynamic GTAP Model*

The Dynamic GTAP model is increasingly being used to examine the impact of global trade and environmental issues over time. The theory behind the dynamic model relies on a number of convergence parameters to determine the path of investment and capital stocks. In most cases the value of these parameters has either been calibrated or assumed. Further examination of these parameters is essential for building reliable long term baseline and enhancing the usefulness of the model for policy analysis. Alla Golub, a graduate student working with Terrie Walmsley, Elena Ianchovichina, Thomas Hertel and Robert McDougall, is currently using econometric techniques to estimate the convergence parameters used in the Dynamic GTAP model.

This research aims to: a) examine empirically the mechanisms underlying the Dynamic GTAP model, including the extent to which capital is mobile and rates of return converge; b) estimate the parameters used in the Dynamic GTAP model which drive the rate at which this convergence occurs; and c) incorporate these empirical estimates into the model and test their performance within the model.

This work will be presented by Alla Golub at the conference this year.

2. Validation of the Static GTAP Model

In collaboration with Roman Keeney and Tom Hertel, Ernesto Valenzuela has been simulating historical agricultural price volatility in the GTAP model and using this as a way of indirectly validating the static GTAP model as well as the GTAP-AGR variant. The latter seeks to incorporate the latest econometric estimates of supply and demand elasticities for food and agricultural markets. The GTAP-AGR model is documented in a forthcoming GTAP technical paper (#24). The validation work has been reported on in a series of conference papers and is the subject of a draft journal article.

VII. Network

Review of the Network Goal

The network goal is to increase effective participation in the global network, particularly in developing countries.

1. Obtain funding from donor agencies for developing country participants.
2. Conduct more courses and conferences in developing countries.
3. Review pricing to enable greater developing country participation.

The Center has been very effective at obtaining increased participation by developing economies this year. UNECA has joined the board and has initiated a long-term project to increase the coverage of African economies in the GTAP Data Base. There have been a number of other contributions of developing economies (including some from the World Bank) and numerous requests for information on contributing. In addition to the possible course in India, Nathan Associates also sponsored 2 Egyptians and 4 Indonesians to attend the upcoming short course in Crete and/or the web course. Moreover we received a number of excellent proposals, all from developing economies, to host the 2006 conference. In the end the board chose the UNECA proposal for a conference in Ethiopia.

While the increased activity is extremely good, it is important that we continue to look at issues related to increasing and maintaining developing country participation. One of the primary issues is what we can do to ensure that people from developing countries continue to be engaged in GTAP and the network after the short course is finished. We hope to discuss these issues and present a pricing plan at the Board Meeting.

Foster communication within the GTAP Network and beyond.

In 2004, the Purdue Climate Change Research Center (PCCRC) held a meeting which brought together people from numerous departments throughout the University to discuss how the PCCRC could benefit from interdisciplinary research. Wallace Tyner and Huey-Lin Lee presented a poster at this meeting to help educate people within Purdue about GTAP and its research in the climate change area. During this meeting it was remarked that more people outside of Purdue knew of GTAP than did people inside Purdue. This meeting was successful at educating people in Purdue about GTAP.

It is expected that the center will collaborate with PCCRC on environmental projects in the future. The Center is also currently working on developing brochures to highlight the GTAP Data Base and research efforts of the Center.

Research Fellows

This year a committee was drawn up to decide the GTAP Research Fellows. The committee included Patrick Jomini (Chair), Will Martin, Sebastian Jean, Betina Dimaranan and Judy Conner. The committee's role is to:

- Put forth recommendations.
- Obtain recommendations from board members.
- Gather CVs.
- Make the final decision on new members.
- Also decide on reappointments of previous members whose 3 year term has concluded.
- Report decisions to the board.

Following the large number of research fellows elected last year it was decided that the number of new Research Fellows should be limited to 3-5 people.

Will Martin will report on the committee's decisions at the Board meeting. The CVs of the research fellows are included in the supplementary material in your folder and on the website.

Conference Proposals for 2007

The conference proposals for the 2007 conference will be considered at the Board meeting.

New Technical and Working Papers

Technical Papers

Deriving a Global Social Accounting Matrix from GTAP Versions 5 and 6 Data
by McDonald, Scott and Karen Thierfelder
GTAP Technical Paper No. 22, 2004

International Cross Section Estimates of Demand for Use in the GTAP Model
by Reimer, Jeff and Thomas Hertel
GTAP Technical Paper No. 23, 2004

GTAP-AGR: A Framework for Assessing the Implications of Multilateral Changes in Agricultural Policies
By Roman Keeney and Thomas W. Hertel
GTAP Technical Paper No. 24

New Working Papers

Bilateral Free Trade Agreements and Customs Unions: The Impact of the EU Republic of South Africa Free Trade Agreement on Botswana
by Walmsley, Terrie and Scott McDonald
GTAP Working Paper No. 31, 2004

The Earnings Effects of Multilateral Trade Liberalization: Implications for Poverty in Developing Countries
by Hertel, Thomas, Maros Ivanic, Paul Preckel and John Cranfield
GTAP Working Paper No. 30, 2003

A Comparative Analysis of the EU-Morocco FTA vs. Multilateral Liberalization
by Elbehri, Aziz and Thomas Hertel
GTAP Working Paper No. 31, 2004

The GTAP Website Report

The website report is contained in the supplementary materials provided in your folder and on the board we site.

Increasing Developing Country Participation

A proposal for changing the pricing structure to increase developing country participation is included in Appendix 4. A proposal for increasing the price of the GTAP Data Base in general is provided in Appendix 5.

VIII. Education

Review of the Education Goal

The education goal is to expand and improve global economic analysis education worldwide (both within and outside the network).

1. ***Promote learning among data base contributors***.

The I-O contributor's website was made available in 2003 and continues to improve as contributors donate programs and issues are added to the problems list.

2. ***Use workshops and web-based products to provide specialized learning***.

The first learning session on the Dynamic GTAP Model will be held at the 8th Annual Conference on Global Economic Analysis in Lübeck, Germany in June 2005. It is hoped that the sessions will promote the use of the Dynamic model and encourage participation at a future Short Course on the Dynamic GTAP model.

3. Improve communication, learning, and transfer of knowledge within the Center.

The Center has implemented a number of ideas which have contributed to the transfer of knowledge within the Center. Staff meetings are held every 3 weeks. The Center has a seminar program which allows staff and students to share information on what they are doing and improve their presentation skills. An orientation and mentoring program was initiated for new graduate students in August 2004. Given the positive feedback, the orientation program will be repeated in August this year for the new intake of graduate students.

Betina Dimaranan attended Thomas Rutherford's MPSGE course at University of Colorado, October 2004.

4. Improve marketing of GTAP courses.

Upcoming Courses and Plans

As stated above, a Learning Session on the Dynamic GTAP model will be held at the 8th Annual Conference on Global Economic Analysis in Lübeck, Germany on June 11, 2005.

The 13th Annual Short Course in Global Trade Analysis will be held in Heraklion, Crete, June, 18-24, 2005. 30 participants are expected to attend the course from 17 countries. The course is being hosted by the University of Crete, Heraklion, Crete, Greece. We would like to thank Marinos Tsigas from the USITC for initiating this proposal and working with the host to put together this proposal. It is shaping up to be a very successful course.

Later this year or early next year we also hope to hold a short course in Mumbai, India. This course was initiated by Maurice Landes at the ERS and would be hosted by the Indira Gandhi Institute of Development Research (IGIDR) in Mumbai, India. Terrie Walmsley has been working with Pete Minor and Erin Endean from Nathan Assoc. to obtain additional funding from USAID. It is hoped that the funding for this project will be finalized soon. USAID have also

expressed an interest in developing an application and paper. We are very grateful to all parties involved.

If the funding comes through we would like to encourage board members to advertise and assist us in finding participants in South Asia. The course fee will be heavily subsidized, accommodations at IGIDR guest house is available free of charge and some funds are available to cover airfares to those traveling from out side of Mumbai. If you have any contacts with individuals in South Asia please direct them to the GTAP Website where they can apply.

IX. Finances, Budgets and Staffing Plan

Budgeting

To be handed out and discussed at the board meeting.

Staffing Plan

To be handed out and discussed at the board meeting.

X. Appendices

Appendix 1: Dynamic GTAP Book

BOOK TITLE: Global Economic Analysis: Dynamic Modeling and Applications

THE AUTHORS:

Elena Ianchovichina, World Bank
Robert McDougall, Purdue University
Terrie Walmsley, Purdue University

OTHER CONTRIBUTORS

Jananki Alavalapati (University of Florida, USA)
Ming Ming Chan (Australian National University, USA)
Roy Darwin (U.S. Department of Agriculture, USA)
Betina Dimaranan (Purdue University, USA)
Thomas Hertel (Purdue University, USA)
Ken Itakura (Purdue University, USA)
Huey-Lin Lee (Purdue University, USA)
Jeffrey Reimer (University of Wisconsin, USA)
Qun Shi (Australian National University, Australia)
Robbin Shoemaker (U.S. Department of Agriculture, USA)
Brent Sohnegen (Ohio State University, USA)
Rod Tyers (Australian National University, Australia)
Grace Wong (Conservation International, USA)

RATIONAL AND SCOPE

Global Economic Analysis: Dynamic Modeling and Applications by Elena Ianchovichina, Robert McDougall and Terrie Walmsley is a follow-up piece to the GTAP book by Hertel, T. (ed) Global Trade Analysis: Modeling and Applications, a publication of Cambridge University Press. The book is made up of two parts. The first will expound upon the Dynamic GTAP model and Data Base, and introduce readers to issues such as developing a baseline, decomposing welfare and using the new software specifically tailored for Dynamic modeling. The second part will discuss a number of important applications.

The applications in the book deal with a number of important policy issues using an original global dynamic CGE framework. The applications can be grouped into two major areas – environmental and integration issues. The environmental issues, well suited for analysis with dynamic GTAP, range from CO2 emissions trading, to carbon policies such as reforestation programs and carbon subsidies, to technological progress in agriculture. The rest of the applications focus on integration issues and issues on which there are very few simulation studies such as behind the border measures (e.g. rules governing foreign investment, e-commerce regulations, trade in services, harmonization of technical standards, sanitary and phyto-sanitary

regulations, the streamlining of customs procedures), demographic change and migration.

The book's primary audience are economists and research analysts who have purchased the CUP volume by Hertel and/or are interested in quantitative evaluations of environmental and integration issues. In general, the book will appeal to economists in universities, colleges, international institutions, and national government agencies who undertake quantitative analysis of economic policies. Similarly to the CUP volume edited by Hertel, this book will be the main textbook for a course on Dynamic Global Trade Analysis, held at Purdue University. The book can also serve as a text for other courses, for example, on global economic modeling, computable general equilibrium modeling, and trade policy analysis. Such courses are part of the curriculum of many graduate programs in Applied Economics, Agricultural and Resource Economics, Development Economics, International Economic Policy.

The book is going to fill a void in the literature on empirical economic analysis, since we are not aware of another book of this type. The book can be marketed globally with an emphasis on markets in North America, Western Europe, Australia, East Asia (Japan, Hong Kong (China), Taiwan (China), Korea, Singapore, China), Eastern and Central Europe. The book is expected to be approximately 400 pages long.

CONTENTS

10. Environmental Implications of a Slowdown in Agricultural Research by Elena Ianchovichina, Roy Darwin and Robbin Shoemaker

11. Analysis of CO_2 emissions trading by Huey-Lin Lee

12. An Integrated CGE Approach to Investigating Climate-Forest Policies by Grace Y. Wong, Janaki R.R. Alavalapati, Brent Sohngen, and Elena Ianchovichina

13. The Contribution of Productivity Linkages to the General Equilibrium Analysis of Free Trade Agreements by *Ken Itakura, Thomas Hertel, and Jeffrey Reimer*

14. Global Demographic Change and Economic Performance: Simulations from an Augmented Dynamic GTAP by Ming Ming Chan, Qun Shi and Rod Tyers

IV. Evaluation of dynamic GTAP framework

15. Implications for global economic analysis by Elena Ianchovichina

Glossary

Appendix 2: List of Issues for the discussion of other data base and research priority issues

Topics already raised during the meeting include:

- taxes;
- energy;
- data release strategies;
- services;
- land use data base and modeling; and
- developing country plan.

Other issues include:

- quality of I-O tables;
- quality comparisons of inputs;
- quality comparisons of the final data base (FIT statistics);
- factor splits;
- the facility for disaggregating commodities (SplitCom);
- margins;
- releasing the Data Base in GAMS format;
- ad-hoc expert groups and in particular links with FAO;
- protection;
- sugar;
- data procurement policies;
- pricing policies;
- data management issues;
- multi-year data bases;
- validation exercises;
- the dynamic model;
- the GTAP Baseline;
- poverty and household survey data;
- labor migration;
- GTAP-AGR;
- adjustment costs;
- services liberalization and FDI; and
- GAMs courses;
- Tariff Aggregation technical paper, and
- Regional disaggregation

Appendix 3: GTAP Data Base Release Strategies

Betina Dimaranan

The GTAP 6 Data Base was released to the GTAP consortium members on December 22, 2004. Consistent with the policy of maintaining a three-month lag between the release of the Data Base to consortium members and to the general public, the GTAP 6 Data Base CD-ROMs will be shipped in to the public in May 2005. As we enter the interim release part of the GTAP 6 Data cycle, we would like to revisit our usual practice regarding interim releases of the Data Base and solicit the GTAP Advisory Board's input on alternative release strategies concerning interim releases of the GTAP 6 Data Base.

Data Cycle: Previous Versions

Each GTAP Data Base Cycle begins with a shift to a new reference year. We typically start updating the previous data base by incorporating macroeconomic data and merchandise trade data for the new reference year. Other updated international datasets, input-output tables for new regions, and updated I-O tables for existing regions are also incorporated in the data base. Once all the international datasets for the new base year have been incorporated into the data base, a final release candidate is circulated. If significant problems are found with the release candidate data base, these problems are examined and addressed and a new final release candidate is made available to the consortium members. If no significant problems are reported to the Center within the one month comment period, the final release candidate automatically becomes the final release data base. This was the release procedure that was followed with the first four releases of the data base. An 18- to 24-month data cycle was observed with the GTAP 1 through GTAP 4 Data Bases. The chronology of final releases of the GTAP Data Base is given in Table 1.

Table 1. History of GTAP Data Base Releases

Release	Release Year	No. of Regions	No. of Sectors	Reference Year
GTAP 1	1993	15	37	?
GTAP 2	1994	24	37	1992
GTAP 3	1996	30	37	1992
GTAP 4	1998	45	50	1995
GTAP 5	2001	66	57	1997
GTAP 6	2005	87	57	2001

A number of significant changes were introduced in constructing the GTAP 5 Data Base. Foremost among these changes was the automation of the GTAP Data Base construction process. The various aspects of data construction process are divided into modules arranged in a directory tree. For example, there are separate modules for input-output data disaggregation, trade data processing, energy data processing, the FIT procedures, etc. In building the GTAP 5 Data Base, all the modules were linked together using programs that allowed for the construction of the data base over one or two days with "one push of a button."

Various changes in data base management were also implemented during the construction of the GTAP 5 Data Base. The most significant of these changes include:

(a) Regional Flexibility – All of the GTAP international source data are maintained at the level of more than 200 "standard countries." This facilitates regional flexibility whereby new regions can be added with a relatively modest amount of work and without having to go back to the contributor for data for the new regions.

(b) Version Control – A system of archiving data base inputs and programs was developed and implemented. This system allowed for the reconstruction of earlier versions of the data base to identify and explain differences between versions.

The data base management changes implemented in the construction of the GTAP 5 Data Base enabled the Center to construct a data release in a shorter amount of time and thus allowed for frequent releases of the data. As the international datasets for the 1997 base year were being collected, pre-releases of the data base were made available when a significant collection of new datasets have already been assembled. Pre-releases were also found useful for soliciting scrutiny/comments when critical new datasets were introduced. Improvements in the then GTAP web-board and eventually in the GTAP Website aided the secure dissemination of the data releases to the GTAP advisory board members. Three pre-releases of the GTAP 5 Data Base were made from April 2000 to May 2001. A list of data releases of the GTAP 5 Data Base is given in Table 2.

Since a number of input-output tables became available after the GTAP 5 final release, we introduced the interim release track in the data cycle. The interim releases were designed to be exactly the same as the GTAP 5 Data Base except for the new regional coverage or updated I-O tables. In order to ensure comparability across interim releases, we resolved then to consciously avoid fixing known problems in programs that will lead to significant changes in the international datasets. The first interim release, GTAP 5.1, involved the introduction of pre-adjusted I-O tables for the EU member countries. In response to concerns that total EU agricultural production in the GTAP 5 Data Base was overstated and that the shares of each member to total agricultural production were inaccurate, the 15 I-O tables were revised to target agricultural production data in the EU in 1997. Input-output tables for 13 new regions (CEECs, some Former Soviet Union, Russian Federation, and Albania) and 5 updated I-O tables (Southeast Asia) were introduced in the next two interim releases. We included all bug fixes in the last interim release, GTAP 5.4. The bug fixes included revisions on certain aspects of the international data, e.g. removing intra-regional energy trade data, re-introducing zero agricultural export subsidy rates, reconciling tariffs for Botswana and the Rest of SACU, correcting the bilateralization of agricultural tariffs and export subsidy data to exclude intra-regional trade. With the concurrence of the Advisory Board, GTAP 5.4 was released to the public (to pre-purchasers of the GTAP 6 Data Base) in November 2003.

GTAP 6 Pre-releases

We had five pre-releases of the GTAP 6 Data Base from November 2003 to December 2004. In the first pre-release, we incorporated 2001 macroeconomic data, 2001 bilateral trade data, 2001 domestic support data, 2001 tariff data from MAcMaps and 2001 agricultural export subsidy data. With input from the board members, we also introduced a significant expansion in the regional mapping of composite regions to allow for better analysis of various preferential trading areas. In subsequent pre-releases, we introduced I-O tables for two new regions, updated the I-O tables for 13 regions, and pre-adjusted the I-O tables for the OECD and some non-members countries to target actual agricultural production in 2001. A list of the pre-releases of the GTAP 6 Data Base is given in Table 3.

As we waited for the contributions of updated 2001 versions of all international datasets, we constructed pre-releases of the data base when a significant collection of new datasets had been assembled. The series of pre-releases greatly improved the quality of the final GTAP 6 Data Base. Through the pre-releases, we obtained feedback from users about the domestic data bases and the international datasets. As appropriate, comments were reported to the contributors who provided revised versions of the data. In the case of the I-O tables, this was true in the case of India, Korea, and Brazil for which revisions on the original I-O tables had to be made by the I-O contributors. It is also due to feedback from users that we first pre-adjusted the I-O tables for the EU25 to 2001 agricultural production targets in GTAP 6 pre-release 2 (GTAP 6pre2) and then pre-adjusted the I-O tables for the other OECD countries in GTAP 6pre4.

In the case of international datasets, feedback from users was found to be most important in the case of

the tariff data which was revised three times in the course of the five pre-releases. Data using the reference group weighting scheme was used in GTAP 6pre1; a revised version was contributed for GTAP 6pre3; another revision using ordinary trade weights was used in GTAP 6pre4; and, a final version using improved US data and revised TRQ calculation methodology was incorporated in GTAP 6pre5. Based on feedback about re-exports in the Netherlands, the data on merchandise trade incorporated in GTAP 6pre1 was also revised in GTAP 6pre4. The original data on agricultural export subsidies and on domestic support incorporated in the GTAP 6pre1 Data Base were also revised in a later pre-release.

Although we had 5 pre-releases of the GTAP 6 Data Base, there are two important aspects of the data which we originally intended to update but in the end were not able to do so in the interest of not delaying the final release by several more months. First is the use of 2001 IEA energy price data instead of simply updating energy prices to 2001 using price indices. Although a significant overhauling of the energy module was done to use the IEA energy volume data, switching over to the IEA price data proved to be a more complex procedure that will require several more months of work. At the time of writing, we have yet to investigate whether use of the 2001 IEA price data will generate significant changes in the data base. Second is the introduction of OECD data with bilateral data in services trade. Introducing data with bilateral detail in services has been an objective since the GTAP 5 Data Base. Additionally, after the board release of GTAP 6, a mismatch between the classification of sugar in GTAP with that of the International Sugar Organization (ISO) was identified by Mark Gehlhar and Frank van Tongeren. This mismatch in the sugar classification is reflected importantly on sugar trade data. Mark Gehlhar has offered to revisit the sugar trade data using the ISO statistics as a guide to trade totals.

Table 2. Releases of the GTAP 5 Data Base

Release	Release Date	Audience	Ref. Year	Domestic Data	International Data
GTAP 5pr1	May 2000	Board	1997	*New regions:* BGD, EU(14), CHE, HUN, POL, BWA, SAB, MWI, MOZ, TZA, ZMB, ZWE, UGA *Updated:* AUS, JPN	1997 macroeconomic data; 1997 merchandise trade data; 1997 output subsidies; 1997 export subsidies; 1997 merchandise tariff data
GTAP 5pr2	Nov 2000	Board	1997		1997 agricultural tariff data; 1997 domestic support data (ERS); 1998 export subsidies data; merchandise trade data *(revised)*
GTAP 5pr3	Apr 2001	Board	1997	*Updated:* CHN, KOR, TWN, IND, COL, EU(15)	1997 MFA/ATC ETEs 1998 domestic support (FOI) with EU details; merchandise tariff (WITS) data *(revised);* export subsidies data *(revised);* time-series trade data (1965-1998)
GTAP 5.0	Jun 2001	Board /Public	1997	*Updated:* VNM, USA	1997 I-O disaggregation data; 1997 energy data; merchandise trade data *(revised);* merchandise tariff (WITS) data *(revised);* revised factor splits in agric; revised report of energy volumes;
GTAP 5.0.1	Sep 2001	Board /Public	1997		bug fix: indexing of subsidies on imported intermediates
GTAP 5.1	May 2002	Board	1997	*Agric Prodn Targeting:* EU; *Updated:* GBR	
GTAP 5.2	Sep 2002	Board	1997	New regions: BGR, CZE, ROM, SVK, SVN, EST, LVA, LTU, HRV, MLT, CYP	
GTAP 5.3	Mar 2003	Board	1997	*New regions:* RUS, ALB	energy data revisions
GTAP 5.4	Aug / Nov 2003	Board /Public	1997	*Updated:* JPN	Bug fixes: energy trade, export subsidy, tariffs BWA and XSC, bilateralization of tariffs and export subsidy, export revenue

Table 3. Pre-releases of the GTAP 6 Data Base

Release	Release Date	Audience	Ref. Year	Domestic Data	International Data
GTAP 6pr1	Nov 2003	Board	2001		2001 macroeconomic data; 2001 merchandise trade data; 2000 export subsidies; 2001 domestic support for OECD and EU; 2001 MAcMaps tariff data
GTAP 6pr2	Apr 2004	Board	2001	*New region:* MDG; *Updated:* AUS, NZL, KOR, TWN, SGP, IND, BRA, COL, NLD, TUR; *Agric Prod Tgt:* EU, CEEC	2001 domestic support for NMEs; revised trade elasticities; revised demand elasticities
GTAP 6pr3	Jun 2004	Board	2001	*Revised:* IND, IDN, THA (re-aggregated); *Correction:* KOR	2001 government consumption; 2001 I-O disaggregation; 2001 ATC ETEs; 2001 merchandise trade data *(revised)*; 2001 MAcMaps tariff data *(revised)*
GTAP 6pr4	Sep 2004	Board	2001	*New region:* TUN; *Updated:* ARG; *Agric Prodn Tgt:* AUS, NZL, JPN, KOR, USA, MEX, CHE, RUS, TUR, BRA	2001 services trade; 2001 export subsidies *(revised)*; 2001 MAcMaps tariff data *(revision – trade weights)*
GTAP 6pr5	Nov 2004	Board /Public	2001	*Correction:* AUS, ARG, *Revised:* BRA; *Agric Prodn Tgt:* CAN	2001 merchandise trade *(revision – NLD re-exports);* 2001 EU domestic support data *(correction);* 2001 MAcMAp tariff data *(revision)*
GTAP 6	Dec 2004/ Apr 2005	Board /Public	2001		2001 energy price data *(update);* 2001 income and factor tax (new); 2001 population data (new); Time-series trade data (extended to 2002)

Alternative Release Strategies Post-GTAP 6

We are now ready to advance to the interim release stage of the GTAP 6 Data Base cycle. There are a number of I-O tables for new regions that we plan to incorporate in the first interim release, GTAP 6.1, scheduled for July 2005. However, in light of the potentially important revisions that may be done to some of the 2001 international datasets (for example, energy prices, bilateral detail in services trade, and revised sugar classification), we are rethinking our earlier policy on interim releases. In GTAP 5, to ensure comparability across data releases, the interim releases allowed only the inclusion of new and updated I-O tables but not revisions in the international datasets. However, it is understandable that the various stakeholders would have differences in opinion on whether the interim release series should include only new and updated I-O tables or also include updates on the international data (for the same base year) and bug fixes. It is for this reason that we would like to solicit your feedback on alternative release strategies. The three proposed alternative release strategies are:

(a) Strategy 1 – Include only new and updated I-O tables in the GTAP 6 interim releases and delay revisions in the international datasets until GTAP 7.

(b) Strategy 2 – Aside from new and updated I-O tables, include updates of international datasets, if these are found to be important based on demand from stakeholders.

(c) Strategy 3 – Include new and updated I-O tables in the interim release but have a separate public data release stream for, e.g. a potential update of the 2001 energy data.

A preliminary schedule for the interim releases of GTAP 6 and for the pre-releases of GTAP 7 under the three alternative release strategies is given in Table 4.

Several I-O tables for new regions are already in the pipeline for the first interim release of GTAP 6. Among these are Bolivia, Ecuador, Iran, Nigeria, and Pakistan. We plan to have GTAP 6.1 available to the GTAP consortium members by end of July 2005. The new regions will just be incorporated into the GTAP 6 Data Base. Under Strategy 1, we plan another interim release, GTAP 6.2, six months after GTAP 6.1. No updates will be made on the international datasets until we move on to the GTAP 7 data cycle.

Under Strategy 2, we will also start off with a GTAP 6.1 interim release which incorporates new and updated I-O tables. However, the second and third interim releases will include updates on the international datasets as needed. Potential revisions include updating the energy prices data, providing bilateral detail in services trade, and incorporating revised 2001 trade data reflecting revised classification of the GTAP sugar commodity. If available, new and updated I-O tables will also be included in the second/third interim releases.

Strategy 3 entails two data base streams. One is the new or updated I-O tables data stream as in Strategy 1. However, should it be found to be important, the other data stream will be an update on the 2001 energy prices data built off the GTAP 6 Data Base. The data base, possibly named GTAP-6E, will be made available to the public as a public release. It will not include the new/updated I-O tables incorporated in GTAP 6.1. A case similar to this is the GTAP-4E Data Base, a special one-off public release following the final release of the GTAP 4 Data Base. The GTAP-4E data base augmented the GTAP 4 Data Base with updated energy volume flows data.

Some users of the data base from consortium member agencies have argued for not changing the international datasets while we include new regions in the data base since this allows for easy comparison

of the results of previous studies using an older release of the data base. However, there are also other users who have identified deficiencies in the specific international datasets which are of importance in their work. For these users, the next data base cycle could be a long wait.

Table 4. Alternative Interim Strategies Post-GTAP 6

GTAP Data Base Releases	**Estimated Release Date**	**Strategy 1 (new and updated I-O tables only; no changes in international datasets)**	**Strategy 2 (revise international datasets and new and updated I-O tables)**	**Strategy 3 (Strategy 1 but with a separate branch)**
GTAP 6.1 (interim release)	July 2005	New/updated I-O tables; Any minor bug fixes;	Same as Strategy 1.	Same as Strategy 1.
GTAP 6.2 (interim release) **or** **GTAP-6E** (public release)	Oct 2005		***2001 Energy price data update; Sugar classification correction (2001 trade data);*** More new/updated I-O tables; Any minor bug fixes;	***GTAP-E – energy data update(off GTAP 6 not GTAP 6.1)***
GTAP 6.2 or 6.3 (interim release)	Jan 2006 or as needed	More new/updated I-O tables; Any minor bug fixes;	More new/updated I-O tables; Any minor bug fixes; ***2001 Bilateral Services Trade***	More new/updated I-O tables (off GTAP 6.1); Any minor bug fixes;
GTAP 7 pre-release 1 (switch to new reference year)	April 2006	New/updated I-O tables; 2003 Macroeconomic data 2003 Merchandise trade data Other 2003 international datasets as available, including *energy and bilateral services trade;* Textiles/Clothing Mapping; Invisibles (comparison programs, data and program separation; plumbing); ***Sugar classification correction (2003 trade data);***	New/updated I-O tables; 2003 Macroeconomic data 2003 Merchandise trade data Other 2003 international datasets as available, including *energy and bilateral services trade;* Textiles/Clothing Mapping; Invisibles (comparison programs, data and program separation);	New/updated I-O tables; 2003 Macroeconomic data 2003 Merchandise trade data Other 2003 international datasets as available, including *energy and bilateral services trade;* Textiles/Clothing Mapping; Invisibles (comparison programs, data and program separation);
2 or 3 more GTAP 7 pre-releases, as needed	Rest of 2006	New/updated I-O tables; Other international datasets; Primary factor splits; GAMS format release; Multiple year release; Universal country coverage;		
GTAP 7 (board / public)	April / July 2007	New/updated I-O tables; Remaining international datasets		

Appendix 4: Proposal for Changing pricing for developing Countries

Wallace Tyner

One of our strategic plan goals is to reconsider the pricing structure for GTAP products to encourage greater participation and usage by analysts from developing countries. This review encompasses pricing for the data base, short course, and annual conference.

Data base

At present, there is a 50 percent data base discount for purchasers from low-income countries. The World Bank definition of low-income countries is used, and there are currently 61 countries that meet this criterion (Table 1). One of the issues is whether or not we should also provide a discount for low-middle income countries (Table 2). There has been considerable interest from some of these countries, but our current pricing structure does not permit many purchases from these countries.

Tables 1

Low-income economies (61)

Afghanistan	Guinea-Bissau	Pakistan
Angola	Haiti	Papua New Guinea
Bangladesh	India	Rwanda
Benin	Kenya	Sao Tome and Principe
Bhutan	Korea, Dem Rep.	Senegal
Burkina Faso	Kyrgyz Republic	Sierra Leone
Burundi	Lao PDR	Solomon Islands
Cambodia	Lesotho	Somalia
Cameroon	Liberia	Sudan
Central African Republic	Madagascar	Tajikistan
Chad	Malawi	Tanzania
Comoros	Mali	Timor-Leste
Congo, Dem. Rep	Mauritania	Togo
Congo, Rep.	Moldova	Uganda
Cote d'Ivoire	Mongolia	Uzbekistan
Equatorial Guinea	Mozambique	Vietnam
Eritrea	Myanmar	Yemen, Rep.
Ethiopia	Nepal	Zambia
Gambia, The	Nicaragua	Zimbabwe
Ghana	Niger	
Guinea	Nigeria	

Table 2

Lower-middle-income economies (56)

Albania	Georgia	Philippines
Algeria	Guatemala	Romania
Armenia	Guyana	Russian Federation
Azerbaijan	Honduras	Samoa
Belarus	Indonesia	Serbia and Montenegro
Bolivia	Iran, Islamic Rep.	South Africa
Bosnia and Herzegovina	Iraq	Sri Lanka
Brazil	Jamaica	Suriname
Bulgaria	Jordan	Swaziland
Cape Verde	Kazakhstan	Syrian Arab Republic
China	Kiribati	Thailand
Colombia	Macedonia, FYR	Tonga
Cuba	Maldives	Tunisia
Djibouti	Marshall Islands	Turkey
Dominican Republic	Micronesia, Fed. Sts.	Turkmenistan
Ecuador	Morocco	Ukraine
Egypt, Arab Rep.	Namibia	Vanuatu
El Salvador	Paraguay	West Bank and Gaza
Fiji	Peru	

Of course, if we consider expanding the list of countries eligible for the discount, we would need to make up the revenue through higher prices unless the increased demand made up for the revenue loss (which could be the case). Also, we recognize, of course, that the data base product is one with low marginal cost, so we can offer considerable price reductions to developing countries and still cover all variable costs. Another issue is whether the low income and low middle income countries should receive the same discount or differential pricing. For example, should both groups receive a 50 percent discount or should low income receive a 60 percent discount and low middle 40 percent?

Even though it complicates the pricing scheme a bit, it seems to make sense to create a third category. Table 3 provides a proposed pricing plan, which includes the data base price increase (about 15 percent) described in the accompanying document and 60 and 40 percent discounts for low and low-middle income purchasers respectively. We would anticipate the general price increase regardless of what we do for developing countries, so that higher level should be considered the new base.

Table 3

Proposed Future Data Base Pricing

New Subscription	*Standard*	*LM Income*	*L Income*
Government and Private Sector License	$ 4,600	$ 2,760	$ 1,840
Multiple Academic User License	$ 1,700	$ 1,020	$ 680
Single Academic User License	$ 900	$ 540	$ 360
Upgrade from Version 5			
Government and Private Sector License	$ 2,900	$ 1,740	$ 1,160
Multiple Academic User License	$ 900	$ 540	$ 360
Single Academic User License	$ 450	$ 270	$ 180
Aggregation-Constrained GTAPAgg Package			
Government and Private Sector License	$ 2,300	$ 1,380	$ 920
Multiple Academic User License	$ 850	$ 510	$ 340
Single Academic User License	$ 450	$ 270	$ 180

NOTE: Purchases made from multi-lateral or bi-lateral aid funds are at the full price. Developing country discounts are for direct developing country purchases only.

While it is impossible to know for sure, our best judgment is that we could at least maintain current data base revenue using this pricing structure, while at the same time expand usage and participation in developing countries.

Short-course

The current cost for the short-course is $3495 (including GEMPACK) with no discount for developing countries. However, there have been some developing country participants funded by multi-lateral and bi-lateral donors, and we hope to expand that in the future. The short-course is quite different from the data base in that the number of seats is strictly limited to 32 and we do not make a profit. So any seat we sell at a discount lowers total revenue, which must be made up somewhere else. The course revenues must cover all costs. So, if we lower the cost of some seats, we will have to either find ways to lower costs or increase fees for other seats. Unless we change the quality of the course, there is little room to lower costs, so lower prices for developing country participants would necessarily mean higher prices for developed country participants.

Another alternative would be to seek to external funding for developing country participants. We believe this option is more realistic in any event. Even if we gave developing country participants a 50 percent discount on the course fee, they would still have to pay $1750 plus travel expenses. Thus the total bill likely would be greater than $3000, and most developing country participants could/would not pay that amount. So the more realistic idea is to seek multi-lateral and bi-lateral sponsorship for developing country participants in short courses. If the board would help in doing this, we believe it would be possible to achieve a developing country participation rate of 33% within three years. That could happen one of two ways:

- Board members or their organizations identify good candidates for the short course and obtain funding for their participation
- GTAP staff identify strong short-course candidates and seek assistance from donors or board members as appropriate to fund the participation.

Either way, we believe we could increase significantly developing country participation if we

take that as an important objective. It is already happening to some extent. For example, Nathan Associates is funding two Egyptian participants for the Crete short course.

In addition, we already have expanded developing country participation through short courses in developing countries. Last year we had one in Argentina, and we hope there will be another in India in the near future. So in a sense we have already achieved an overall participation rate of over 50 percent.

The bottom line is that we recommend no change in the short course pricing structure but continued offering of short courses in developing countries plus more external funding for developing country participants for the regular short course.

Annual conference

The fee for this year's annual conference is 400 euros regular and 200 euros for students. There is currently no discount for developing country participants. The issues here lie somewhere between the short course and the data base. The conference fee is only a small part of the total cost of attending the conference. So it is not clear to what extent lowering the conference fee for developing country participants would stimulate attendance. However, we probably could offer developing country participants a fee similar or identical to the student fee, which is designed to cover variable cost.

It seems that the appropriate action would consist of two parts. First, in the future, we would permit developing country (low and low-middle income) participants to pay the student fee. Second, we need to search for funding for travel costs so that we can, in reality, achieve the goal of greater developing country participation. Given that the next conference is in Africa and is subsidized by UNECA, we should be in good shape for that meeting. However, for future annual conferences, we will need help from board members in obtaining funding for developing country participation in annual conferences. Again, we are already or doing some of this. For example, I arranged for USAID/Morocco to pay for the participation last year of Dr. Akka Air El Mekki.

We believe that making the changes outlined above with respect to the data base, short-course, and annual conference will enable us to achieve our objective of significantly increasing developing country participation in GTAP activities. We all recognize the benefits of such increased participation. We welcome comments and suggestions on these proposals.

Appendix 5: Proposal for Data Base Price Increase

Wallace Tyner

Table 1 contains our current data base pricing. This pricing has been in effect since 2000, with the release of Version 5. Since that time, of course, our costs have increased. So we are now proposing an increase in data base prices to partially offset these increased costs. Data base sales in 2004-05 amounted to $179,500 as compared to $139,400 in 2003-04. Most of the increase is because of the release of Version 6. Thus, we would not expect to see 2005-06 sales repeat the high level of 2004-05. We will need additional revenue for the data base activities in the future.

We propose an increase in data base prices averaging 15 percent. The new prices are shown in Table 2. These prices are, of course, in U.S. dollars, so most countries will still see a price decline given the fall of the dollar. We would implement this increase effective January 1, 2006. The price increase would be announced on the website in September 2005. Table 2 includes the same pricing structure for developing countries as present, but we are also proposing a change in that pricing, which is reflected in a second document.

Table 1 – Current Data Base Prices

New Subscription	*Unit Price*	*Unit price for Low-Income Economies*
Government and Private Sector License	$ 4,000	$ 2,000
Multiple Academic User License	$ 1,500	$ 750
Single Academic User License	$ 800	$ 400
Upgrade from Version 5 Data Base	*Unit Price*	*Unit price for Low-Income Economies*
Government and Private Sector License	$ 2,500	$ 1,250
Multiple Academic User License	$ 800	$ 400
Single Academic User License	$ 400	$ 200
Aggregation-Constrained GTAPAgg Package	*Unit Price*	*Unit price for Low-Income Economies*
Government and Private Sector License	$ 2,000	$ 1,000
Multiple Academic User License	$ 750	$ 375
Single Academic User License	$ 400	$ 200

Table 2 – Proposed New Data Base Prices (with no change in developing country policy)

New Subscription	*Unit Price*	*Unit price for Low-Income Economies*
Government and Private Sector License	$ 4,600	$ 2,300
Multiple Academic User License	$ 1,700	$ 850
Single Academic User License	$ 900	$ 450

Upgrade from Version 5 Data Base	*Unit Price*	*Unit price for Low-Income Economies*
Government and Private Sector License	$ 2,900	$ 1,450
Multiple Academic User License	$ 900	$ 450
Single Academic User License	$ 450	$ 225

Aggregation-Constrained GTAPAgg Package	*Unit Price*	*Unit price for Low-Income Economies*
Government and Private Sector License	$ 2,300	$ 1,150
Multiple Academic User License	$ 850	$ 425
Single Academic User License	$ 450	$ 225