PUKYONG NATIONAL UNIVERSITY

DIVISION OF INTERNATIONAL & AREA STUDIES

45 Yongso-ro, Nam-gu, Busan 48513, Republic of Korea

Computable General Equilibrium Modeling for Trade Policy

(virtual MAGKS course via ZOOM)

Winter Term 2021/2022

1. Lecturer

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2. Dates and Time

17-21 January 2022	09:00-12:00 (German time)
24-28 January 2022	09:00-12:00 (German time)

3. Course Objectives

The course objectives are:

- To introduce participants to a standardized framework of a multi-region, multi-sector Computable General Equilibrium (CGE) model, the GTAP (Global Trade Analysis Project) model, for conducting a quantitative analysis of international trade issues such as global trade, energy and resource use, and environmental issues, e.g., trade liberalization, free trade agreements (FTAs), trade and poverty, trade and environment, implementation of Paris Agreement, and so on; and
- To provide participants with ample hands-on training with the software, RunGTAP, which has been tailored to global trade analysis within a standard modeling framework.

4. Course Contents and Schedule

The course consists of two parts:

- **Part I** includes the theory behind the GTAP model used in the course, the model notations as well as the software. By working through this material in parallel with the computer-based hands-on experiment, participants can become more familiar with the theory behind the CGE model, the model notation as well as the software.

- **Part II** of the course is an intensive computer-based hands-on training session consisting of a mix of lectures, lab assignments, and discussions designed to introduce participants to the basic features of the model and data base. A standard modeling framework for global trade policy analysis, including the GTAP model, a global data base with limited aggregation of regions and sectors, and the software for manipulating the data and implementing the model, is provided to participants.

17 January 2022
(1) Overview of the CGE model
(2) Basic Accounting Relationships of the GTAP model (I)

18 January 2022
(3) Basic Accounting Relationships of the GTAP model (II)
(4) Overview of the software, RunGTAP

19 January 2022
(5) Price linkage equations
(6) Introduction to hands-on computing

20 January 2022
(7) Data base overview: Domestic and trade data
(8) Protection data in the GTAP data base

21 January 2022
(9) Behavioral equations for Production

24 January 2022
(10) Model simulations using the software

25 January 2022
(11) Structure of Final Demand I: Overview
(12) Model closure

26 January 2022
(13) Welfare decomposition
(14) Interpretation of model results using AnalyseGE

27 January 2022
(15) Structure of Final Demand II: Global Bank
(16) International Transport Behavior

28 January 2022
(21) Small group presentations
(22) Wrap-up discussions

(The schedule is subject to change.)

5. Textbooks and References

- Corong, Erwin L., Thomas W. Hertel, Robert A. McDougall, Marinos E. Tsigas and Dominique van der Mensbrugghe (2017), "The Standard GTAP Model, Version 7", *Journal of Global Economic Analysis*, 2(1), 1-119.
- Burfisher, Mary E. (2017), *Introduction to Computable General Equilibrium Models*, 2nd edition, Cambridge University Press.

- Brockmeier, Martina (2001). "A Graphical Exposition of the GTAP Model", *GTAP Technical Paper No. 8*, Center for Global Trade Analysis, Purdue University.
- Hertel, Thomas W. (ed.) (1997), *Global Trade Analysis Using the GTAP Model*, New York: Cambridge University Press.
- Dixon, Peter B. and Dale W. Jorgenson (eds.) (2013), *Handbook of Computable General Equilibrium Modeling*, Volume 1A & Volume 1B, North-Holland.

- Dixon, Peter, Brian Parmenter, Alan Powell and Peter Wicoxen (1992). *Notes and Problems in Applied General Equilibrium Economics*, North Holland.
- Francois J.F. and K.A. Reinert (eds.) (1997). *Applied Methods for Trade Policy Analysis: A Handbook*. Cambridge University Press (UK).
- Francois and Shiells (eds.) (1994). *Modeling Trade Policy: Applied General Equilibrium Assessments of North American Free Trade*, New York: Cambridge University Press.
- Ginsburgh, Victor and Michiel Keyzer (1997). *The Structure of Applied General Equilibrium Models*, MIT Press.
- Huff, Karen M. and Thomas W. Hertel (1996). "Decomposing Welfare Changes in the GTAP Model", GTAP Technical Paper No. 5, Center for Global Trade Analysis, Purdue University.
- Huff, Karen, Robert McDougall and Terrie Walmsley (2000). "Contributing Input-Output Tables to the GTAP Data Base", GTAP Technical Paper No. 01, Center for Global Trade Analysis.
- McDonald, S. and Karen Thierfelder (2004). "Deriving a Global Social Accounting Matrix from GTAP Versions 5 and 6 Data", GTAP Technical Paper, No. 22, Center for Global Trade Analysis.
- McDougall, R.A. (2001). "A New Regional Household Demand System for GTAP", GTAP Technical Paper No. 20, Center for Global Trade Analysis, Purdue University.
- Pyatt, G. and J. Round (eds.), *Social Accounting Matrices: A Basis for Planning*. Washington, D.C., The World Bank.
- Shoven, John and John Whalley (1992). *Applying General Equilibrium*, Cambridge University Press.