



ECON 550 Applied Trade Policy Analysis

Units: 4

Time: Tuesday and Thursday 8am – 9:50am

Location: THH 116

IMPORTANT:

2 lectures of 1 hour and 50 mins per week

Instructor: Terrie L. Walmsley

Office: KAP 116C

Office Hours: I will be available after class or by appointment or by appointment

Contact Info: Email: twalmsle@usc.edu

Course Description

As national economies have become more integrated through increased trade and investment flows, the importance of understanding the implications of these interactions has also increased. The purpose of this course is to introduce students to the quantitative economic methods used to analyze trade-related issues by governments and international organizations worldwide. Several methods are discussed, although we focus on the use of a global computable general equilibrium models to undertake ex-ante analysis of trade policies and other global issues.

The course begins with the data. Trade data and input-output tables are introduced and used to examine trade patterns and review the theory behind why countries trade. Students will learn how to use a simplified version of a global applied general equilibrium model to examine the impact of trade policies, such as the potential impact of the Trans-Pacific Partnership (TPP) and of the US raising tariffs on Chinese goods, on production, consumption, employment, wages and welfare, among other things. The course will then examine issues related supply chains, non-tariff barriers, investment, economic growth and income inequality. Some of the studies examined introduce dynamics, imperfect competition, foreign investment, supply chains, emissions and household survey data into these models, giving students an idea of how these models are being adapted to better address global issues.

Prerequisite(s): Undergraduate level microeconomics (ECON 303) is required. Experience with excel is also required. The course is mathematical and relies on a good understanding of microeconomics.

Co-Requisite(s): ECON 500 Microeconomics

Course notes: Classes will take the form of lectures, discussion and hands-on modeling exercises. Students will be required to manipulate data in excel, as well as run models using specialized economic modeling software. Students will be provided with various types of models and data via links through blackboard and the software is available on the USC VPN.

Since this syllabus is prepared in advance of the semester, please note that circumstances may arise requiring some adjustment in the syllabus during the semester.

Technological Proficiency and Hardware/Software Required: Students will be required to use several different software packages. Freely available, specialised software can be loaded onto

your own computers (unfortunately no MAC compatible versions of this software are available) or accessed via the USC cloud services.

Learning Objectives and Outcomes

Throughout the course, students will be introduced to and exposed to various quantitative methods and data sources for applied trade policy analysis. By the end of the course students are expected to:

- be able to explain the various new and traditional theories of international trade;
- be able to use data to describe a country's trading relations and show how those trading relations relate to the traditional theories of trade;
- be able to compare and contrast the quantitative methods used in applied policy analysis, as well as decide and justify which applied method would be best suited to examine an issue;
- be able to apply a global computable general equilibrium models to examine the impact of a trade policy and analyze the results;
- be able to discuss the economic implications of several current issues in trade policy and relate them to the theories and models learned;
- be able to think critically about the assumptions, methods and policy recommendations of current research, in order to justify decisions or identify areas for possible improvement;
- be able to read and understand an applied trade policy paper; and
- have practiced presenting.

Required Readings and Supplementary Materials

Links have been provided where the papers or reports are freely available and other books and journal papers can be obtained through the USC Library.

Core reading material:

Bacchetta, M., Beverelli, C., Cadot, O., Fugazza, M., Grether, J., Helble, M., Nicita, A., and R. Piermartini, 2012, [A practical guide to Trade Policy Analysis](https://vi.unctad.org/tpa/index.html), World Trade Organisation and United Nations Conference on Trade and Development Virtual Institutue. Available for download at: <https://vi.unctad.org/tpa/index.html>. This book includes STATA programs and data that you might find helpful.

Burfisher, M., 2017, [Introduction to Computable General Equilibrium Models](#), Cambridge University Press, 2nd edition (1st edition is also adequate). Note that edition 3 is not recommended. This book is available from the library, although you may also want to consider purchasing a copy.

Background reading material:

For those students who have not done an international trade course before (and even for those who have), it would be helpful to have access to an undergraduate trade theory book to provide useful background reading and intuition to the theories underlying the methods and theories being taught. Two appropriate undergraduate level books are:

Feenstra, R. C. and A. M. Taylor, International Trade, Worth Publishers (any edition is fine).

Krugman, P., M. Obstfeld and M. Melitz, 2015, International Trade: Theory and Policy, Pearson (any editions is fine).

Both these books cover similar material and I will give the relevant chapters in both. Past students have noted a preference for Feenstra and Taylor, as my explanations are probably more similar to those provided in that book.

Gravity modeling:

Two user guides on gravity models that contain STATA files.

Sheppard, B. 2016. "The Gravity Model of International Trade: A User Guide (An updated version)", UNESCAP, <https://www.unescap.org/resources/gravity-model-international-trade-user-guide-updated-version>.

Yotov, Y., 2016, Advanced Trade Policy Analysis: The Structural Gravity Model, World Trade Organisation and United Nations Conference on Trade and Development Virtual Institutue. Available for download at: <https://vi.unctad.org/tpa/index.html>

Supplementary reading material:

Items may be added to this list based on students interests.

Aguiar, A., M. Chepeliev, E. L. Corong, R. McDougall, D. van der Mensbrugghe, 2019, "The GTAP Data Base: Version 10", Vol 4, No 1 <https://jgea.org/ojs/index.php/jgea/article/view/77>

Akgul, Z., N. B. Villoria, and T. W. Hertel, 2016, "GTAP-HET: Introducing Firm Hetrogeneity into the GTAP Model." *Journal of Global Economic Analysis* 1(1): 118-180. <https://jgea.org/ojs/index.php/jgea/article/view/18>

Anderson, J. E., 1979, "A Theoretical Foundation for the Gravity Equation." *American Economic Review*, 69(1): 106–16.

Anderson, J. E., and E. van Wincoop, 2003, "Gravity and Gravititas: A Solution to the Border Puzzle." *American Economic Review* 93(1): 170-192.

Anderson, J. E., and E. van Wincoop, 2004, "Trade Costs." National Bureau of Economic Research Working Paper 10480.

Armington, P. S, 1969, "A theory of demand for products distinguished by place of production." *International Monetary Fund Staff Papers* 16(1): 159-178.

Bchir, M., S. Jean, and D. Laborde, 2006, Binding Overhang and Tariff-Cutting Formulas. *Rev. World Econ.* 142, 207–232. <https://doi.org/10.1007/s10290-006-0065-9>

Borjas, G., 2004, "Increasing the supply of labor through Immigration: Measuring the Impact of Native-born workers." Washington DC: Center for Immigration Studies.

Brockmeier, M., 2001, " [A Graphical Exposition of the GTAP Model](https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=311)", GTAP Technical Paper No. 08, https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=311

Burniaux, J. M and T. Truong, 2002, "GTAP-E: An Energy-Environmental Version of the GTAP Model" GTAP Technical Paper No. 16 (https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=923)

Deardorff, A., and R. Stern, 2000, "What the Public Should Know About Globalization and the World Trade Organization." (PDF) Research Seminar in International Economics, Discussion Paper No. 460, July. (Part I & II)

Dixon, P., M. Jerie and M. Rimmer, 2019, "Modern Trade Theory for CGE Modelling: The Armington, Krugman and Melitz Models" *Journal of Global Economic Analysis* 1(1): 1-110.
<https://jgea.org/ojs/index.php/jgea/article/view/8>

Elbehri, A. and T. Hertel, 2006, "A Comparative Analysis of the EU-Morocco FTA vs. Multilateral Trade Liberalization" *Journal of Economic Integration* 21(3): 496-525

Fontagné, L., C. Mitaritonna & J. E. Signoret, 2016, "Estimated Tariff Equivalents of Services NTMs," CEPII Working Paper 2016- 20, August 2016 , CEPII, available at:
<http://www.cepii.fr/CEPII/en/publications/wp/abstract.asp?NoDoc=9270>

Francois, J., M. Manchin, H. Norberg, O. Pindyuk and P. Tomberger, 2013, "Reducing Transatlantic Barriers to Trade and Investment: An Economic Assessment", Center for Economic Policy Research, London. Available at:
http://statmath.wu.ac.at/~hauser/LVs/Oetrie3/Folien/Projekte/TTIP/FrancoisNorberg2013CEPR_t radoc_150737.pdf

Francois, J., and B. McDonald, 1996, "Liberalization and Capital Accumulation in the GTAP Model" GTAP Technical paper No. 7, Center for global Trade analysis, Purdue University: West Lafayette IN.

Fugazza, M., and J. C. Maur, 2008, "Non-tariff barriers in CGE models: How useful for policy?." *Journal of Policy Modeling*, 30(3): 475-490.

Hertel, T. W., D. Hummels and T. L. Walmsley, 2014, "The Vulnerability of the Asian Supply Chain to Localized Disasters in Asia and Global Production." In B. Ferrarini and D. Hummels (eds). *Asia and Global Production Networks-Implications for Trade, Incomes and Economic Vulnerability*. Asian Development Bank and Edgar Elgar Publishing.

Hertel, T. W., and M. Tsigas, 1997, Structure of GTAP. Global Trade Analysis: modeling and applications, 13-73. Draft version available at:
https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=311

Hertel, T., M. Verma, M. Ivanic, E. Magalhaes, C.E. Ludena and A. R. Rios, 2015, "GTAP - POV: A Framework for Assessing the National Poverty Impacts of Global Economic and Environmental Change". GTAP Technical Paper No. 31, Center for Global Trade Analysis, Purdue University: West Lafayette IN (IDB - TN - 870).
<https://publications.iadb.org/publications/english/document/GTAP-POV-A-Framework-for-Assessing-the-National-Poverty-Impacts-of-Global-Economic-and-Environmental-Change.pdf>

Huff, K., and T. W. Hertel, 2001, "Decomposing Welfare Changes in GTAP", GTAP Technical Paper No. 05, https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=308

Hummels, D., J. Ishii, and K-M. Yi., 2001, "The Nature and Growth of Vertical Specialization in World Trade." *Journal of International Economics*, 54 (1): 75–96.

Hummels, D. and G. Schaur, 2013, "Time as a Trade Barrier." *American Economic Review* 103: 1-27.

Kee, H. L., and A. Nicita, 2017, Trade Frauds, Trade Elasticities and Non-Tariff Measures, Mimeo, available at: <http://pubdocs.worldbank.org/en/315201480958601753/3-KEE-paper.pdf>

Kee, H. L., A. Nicita and M. Olarreaga, 2009, "Estimating Trade Restrictiveness Indices", *Economic Journal* 119: 172--199. Available at: <https://openknowledge.worldbank.org/handle/10986/5903>

Khan, M. A., T. L. Walmsley and K. Mukhopadhyay, 2020, "Trade Liberalization and Income Inequality: The Case for Pakistan", American Committee on Asian Economic Studies (ACAES) panel on Economic inequality in Asia, ASSA Meeting, San Diego, USA, 2020. Will be provided.

Krugman, P., 1997, "Does Third World Growth Hurt First World Prosperity?", *Pop Internationalism*, MIT Press

McDonald, S., and T. L. Walmsley, 2008, "Bilateral Free Trade Agreements and Customs Unions: The Impact of the EU South Africa Free Trade Agreement on Botswana", *World Economy*, 31(8), 993-1028

Melitz, M. J. and G. I. P. Ottaviano, 2008, "Market Size, Trade, and Productivity." *Review of Economic Studies* 75: 295-316.

Miller and Blair, 2009, Input-output Analysis: Foundations and Extensions, Cambridge University Press, (2nd edition).

Pearson, K., M. Horridge, and E. Corong, 2018, "Hands-on Computing with RunGTAP and WinGEM To Introduce GTAP and GEMPACK", Centre of Policy Studies, Victoria University https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=1638

Samuelson, P. A., 1954, "The Transfer Problem and Transport Costs, II: Analysis of Effects of Trade Impediments." *The Economic Journal* 64(254): 264-289.

Santos, S. and S. Tenreyro, 2009, "The log of Gravity." *The Review of Economic and Statistics*, 88: 641-58.

Sébastien Jean & David Laborde & Will Martin, 2005, "[Consequences of Alternative Formulas for Agricultural Tariff Cuts](#)," Working Papers 2005-15, CEPII research center.

Siddig, K. A., A. Aguiar, H. Grethe, P. Minor, and T. L. Walmsley, 2014, "Impacts of Removing Refined Oil Import Subsidies in Nigeria on Poverty", *Energy Journal*, 69, 165-178.

United Nations Conference on Trade and Development (UNCTAD), 2015, International Classification of Non-tariff Measures, 2012 version. Geneva. Available at: https://unctad.org/en/PublicationsLibrary/ditctab20122_en.pdf?user=46

Walmsley T. L., and P. Minor, 2017, "Reversing NAFTA: A Supply Chain Perspective", ImpactECON Working Paper No. 07, ImpactECON: Boulder, CO, USA

Walmsley, T. L., and P. Minor, 2020, "US Trade Actions against China: A Supply Chain Perspective", *Foreign Trade Review*, 55(3), 337-371, <https://doi.org/10.1177/0015732520920465>

Walmsley, T. L., and P. Minor, 2020, "Non-tariff Measures in Applied Trade Models: Demand Shifts and Willingness to Pay", *World Economy*, 43(6), 1499-1520, <https://doi.org/10.1111/twec.12890>

Walmsley, T. L., A. Rose and D. Wei, 2020, "The Impacts of the Coronavirus on the Economy of the United States", *Economics of Disasters and Climate Change* <https://doi.org/10.1007/s41885-020-00080-1>

Walmsley, T. L., and A. Strutt, (forthcoming), "A Comparison of Approaches to Modelling Non-Tariff Measures", *Journal of Global Economic Analysis*

Webb, M., A. Strutt, J. Gibson and T. L. Walmsley, 2020, "Modelling the Impact of Non-Tariff Measures on Supply Chains in ASEAN", *World Economy*, 43(8), <https://doi.org/10.1111/twec.12955>

Winters, L. A., N. McCulloch, and A. McKay, 2004, "Trade Liberalization and Poverty: The Evidence So Far", *Journal of Economic Literature*, Vol. XLII (March 2004) pp. 72–115.

Winters, L. A., T. L. Walmsley, Z. K. Wang and R. Grynberg, 2003, "Liberalising Temporary Movement of Natural Persons: An Agenda for the Development Round" *World Economy*, August 2003, Vol.26(8), pp.1137-1161.

World Bank, IDE-JETRO, OECD, UIBE, and World Trade Organisation, 2017, "Measuring and Analysing the impact of GVCs on Economic Development." Global Value Chain Development Report, World Bank. Available at: https://www.wto.org/english/res_e/booksp_e/gvcs_report_2017.pdf. Chapters 1-2.

Description and Assessment of Assignments

Students will be assessed through:

- **Class Exercises:** students will be required to complete 75 percent of in-class exercises. These exercises will include examining data, calculating indexes, running the economic model, working out closures etc.
- **Research Project Plan:** students will be required to write up a document outlining their question, aggregation and approach for the research project.
- **Group Presentation:** students will be required to present their research papers in the last two or three weeks of classes.
- **Group Research Paper:** students will be asked to develop and undertake a policy experiment using a global applied general equilibrium model, and analyze and write up the results.

Grading Breakdown

Assessment	% of Grade	Dates
In-Class Modeling Exercises	40	Approx. one per week
Research Project Plan	10	10 March
Group Presentation of Research Project	20	Last two weeks of classes
Group Research Project	30	End of course (April 30)
TOTAL	100	

Grading Scale: Grading in this course is generally A to C minus, although students that miss classes or assessments could receive a lower grade. To receive an A, students are expected to demonstrate all of the course objectives to a high level.

Submission Policy: Assessment answers are to be submitted via blackboard by the due date. Students will be required to submit written documents, excel files with workings, and other program applications. The written word document should be submitted in microsoft word or pdf, not Mac documents. All answers and explanations should be provided in one word (or pdf)

document (with tables clearly labelled and explained using headings and table notes). Excel and other supplementary files should be submitted, but are meant to be supplementary to assist the grader in finding calculation errors.

Grading Timeline: Assignments will be graded and feedback given within 2 weeks of submission.

Additional Class Policies

Lectures

- Attendance is required to complete in-class exercises. You are required to complete 75 percent or more of in-class exercises. For those who cannot attend a write up of the class exercise will be considered.

- Additional videos, reading materials and activities set to assist students in keeping up with the material. In the first few modules in particular there are quite a few links to additional materials that are meant to help provide background to the topic. In most cases the activities will be done in lectures, although information is provided for you to look at the materials before the relevant class.

In class discussions

It is worth remembering that your classmates are likely to be from many different countries and may have very different views on historical events and policy. It is expected that when discussing issues:

- You will be respectful of your classmates and their right to have an opinion.
- You will not be disruptive - you will avoid interrupting your classmates in order to disagree, instead wait until they have finished before providing your alternate view.
- All comments should be academic in nature. This means that your points should be factual, based on reasonable sources (we can debate what is a reasonable source).
- Having said that, even so called reasonable sources, are likely to have biases and make generalizations about themselves and other countries, so we need to remember that our views have been shaped by the country we live in.
- For this reason you should be open to listening and learning from your classmates - we can all learn a lot from listening to others' experiences and how they view the world.
- Should I say something that you find concerning, please do let me know in class or by email.

Communication

- If an issue or question is urgent, please email me. I may not look at the discussion board every day, especially if people are not using it to ask questions. If the question is important, I will include it on the discussion board.

Research Projects

- Every student will be assigned to a research group in the first few weeks. You will have an opportunity to select your group, however adjustments may be required to ensure groups are of equal size.

- Once in a team you will usually work together with this team in the in-class exercises. Some of these in-class exercises are directly related to your research projects. You should also work together to decide upon a topic/area of interest.

- In writing the research report, students should be careful to attribute to others the data, ideas, etc. taken from them by providing detailed references and bibliography so as to avoid any suspicion of plagiarism and make it easy for anyone reading the paper to quickly locate the reference. In so far as possible, data should be obtained from standard international or standard sources, including on-line and electronic sources not from blogs etc. Every research paper should include an introduction, a brief review of relevant literature, an explanation of the model and experiment undertaken, detailed analysis of the results, a conclusion and policy recommendations, and a bibliography. It is highly recommended that students start searching for topics early in the semester.

Assessment

- Please let me know ASAP if you have a letter from DSP or **suspect** you may have issues with any assessment piece or attendance. I will be more understanding if you notified me early of the possibility of an issue (and if the issue does not eventuate, you have still gained my appreciation).

- Students assignments will be penalized at the rate of 1 percent per day late, unless justified for emergency health reason. Students should notify the professor prior to the due date of any issues or as soon as is practically possible in the case of emergencies.

Course Schedule: A Weekly Breakdown

Module Number	Topic	Lecture #	Date	Assessment
	Welcome and Course overview	1	10-Jan	Ex 1 Understanding IO tables
1	Terminology	2	12-Jan	
2	Utility and production	3	17-Jan	Ex 2 derive Cobb Douglas demand function
		4	19-Jan	
3	Trade Theory and Data	5	24-Jan	Ex 3 Investigate indexes for your countries of interest
		6	26-Jan	
		7	31-Jan	
4	Trade Policy Instruments and Data	8	2-Feb	Ex 4 Examine tariff and NTM data
		9	7-Feb	
		10	9-Feb	
5	Applied Methods	11	14-Feb	Ex 5 Gravity modeling / SMART
		12	16-Feb	
6	A Basic CGE Model	13	21-Feb	Ex 6 Mini Model
		14	23-Feb	
		15	28-Feb	Ex 7 set up sim
7	The GTAP Model	16	2-Mar	
		17	7-Mar	Ex 8 analyse results
		18	9-Mar	
	Research Project plan due		10-Mar	Research Project plan due
	Spring break	-	14-Mar	

			16-Mar	
8	Closures	19	21-Mar	Ex 9 setting up closures and monte carlo sims
9	Trade agreements, trade wars and the WTO	20	23-Mar	Ex 10 modeling an NTM
		21	28-Mar	
		22	30-Mar	
11	Factor mobility and Dynamics	23	4-Apr	Ex 11 alternate closures
12	Trade and Developing Countries	24	6-Apr	
13	Trade and the environment and other issues	25	11-Apr	
		26	13-Apr	
	Presentations	27	18-Apr	Final Research presentations
	Presentations	28	20-Apr	Final research paper due April 30
	Presentations	29	25-Apr	
	Presentations	30	27-Apr	

Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on scientific misconduct, policy.usc.edu/scientific-misconduct.

Support Systems:

Student Health Counseling Services - (213) 740-7711 – 24/7 on call

engemannshc.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call

suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-4900 – 24/7 on call

engemannshc.usc.edu/rsvp

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office of Equity and Diversity (OED) | Title IX - (213) 740-5086

equity.usc.edu, titleix.usc.edu

Information about how to get help or help a survivor of harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants. The university prohibits discrimination or harassment based on the following protected characteristics: race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, age, physical disability, medical condition, mental disability, marital status, pregnancy, veteran status, genetic information, and any other characteristic which may be specified in applicable laws and governmental regulations.

Bias Assessment Response and Support - (213) 740-2421

studentaffairs.usc.edu/bias-assessment-response-support

Avenue to report incidents of bias, hate crimes, and microaggressions for appropriate investigation and response.

The Office of Disability Services and Programs - (213) 740-0776

dsp.usc.edu

Support and accommodations for students with disabilities. Services include assistance in providing readers/notetakers/interpreters, special accommodations for test taking needs, assistance with architectural barriers, assistive technology, and support for individual needs.

USC Support and Advocacy - (213) 821-4710

studentaffairs.usc.edu/ssa

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity at USC - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.