Econometric Analysis of Trade Policy

Semester: Spring semester 2022

Root Number: 477681

ECTS: 3

Lecturers: Octavio Fernández-Amador, Irene Garcés-Iriarte and Achim Vogt.

Dates: June 13 – 17, 2022. Classes will be from Monday to Thursday from 10:00 until 12:30 and from 13:30 until 16:00 and on Friday morning from 10:00 to 13:00.

Audience:

The CAS TradeMod is aimed at professionals, researchers and graduate students (Masters and PhD), notably in Economics and Social Sciences. Undergraduate students will be considered only if their profile is outstanding.

Course description

This course presents the main econometric framework to perform ex-post analysis of trade policies: the structural gravity model of trade. This model predicts bilateral trade flows based on size and distance between exporter and importer units, e.g. geographical, cultural and policy-related barriers to trade. The students are also introduced to the management of bilateral trade data and the main gravity variables. Its main objectives are twofold. First, the participants learn the mainstream framework for carrying out structural gravity estimation. Second, the participants will get experience handling the data most widely used for gravity estimation. Third, the analysis of ex-post estimation of the effects of trade policy instruments, including preferential trade agreements (PTAs) and non-tariff measures (NTMs), and calculation of ad valorem tariff equivalents (AVTEs). The course will be applied. During the sessions, participants will practice with hands-on exercises on data availability and –handling, and the most common gravity estimation frameworks using some the most commonly applied datasets and software (Stata).

Lecturers

Octavio Fernández-Amador

Octavio Fernández-Amador is a senior researcher at World Trade Institute of the University of Bern (Switzerland). He holds a Doctorate in Economics from the University of Innsbruck (Austria) and a degree in Economics from the University of Sevilla (Spain). His research interests are in applied econometrics, international economics, macroeconomics and the empirics of sustainable growth. Octavio has collaborated as a research consultant with different institutions such as the World Bank, the World Trade Organization, and the Austrian Nationalbank (OeNB).

Irene Garcés-Iriarte

Irene is a PhD candidate in Economics at the World Trade Institute (WTI). Her research aims to gain a better understanding on the impact of bilateral regulatory heterogeneity on International Trade flows and policy making. She holds a Bachelor's degree in Economics being awarded with Graduation Prize of the promotion and a Master's degree in Economic Development and Growth at the University of Carlos III in Madrid (Spain). Before joining the WTI, Irene has worked as Economic consultant in a top leading financial consulting firm. Her areas of research interest include international trade, applied economics, econometrics and economic development.

Achim Vogt

Achim Vogt is a PhD student at the WTI working on non-tariff measures. Previously, he worked for the economic consultancy Ecorys Netherlands, mainly carrying out impact assessments of trade related policies. Achim holds a double BSc in International Business Administration and International Economics, and an MSc in Maritime Economics and Logistics (cum laude).

Learning Objectives:

After the course, participants should be able to:

- Work with the datasets most widely used to do gravity econometric modeling.
- Understand the basics of the theory underlying the structural gravity model.
- Work with the most common gravity models and interpret the results.
- Obtain gravity estimates of trade policies by calculating ad valorem equivalents.

Please read the compulsory literature and prepare the exercises handed out.

Grading:

Grading will be based on a take-home assignment where the participants have to solve an exercise in groups of two. Datasets and software code will be made available by the lecturers. The assignments are to be handed in until Sunday, June 19, 2022, 24:00 CET via e-mail or ILIAS.

Course Overview

Class	Date	Lecturer	Time	Hour	Topic
1	13.06.	Fernández-Amador	10:00-12:30	2.5	From theory to the structural gravity model
2	13.06.	Fernández-Amador Garcés-Iriarte	13:30-16:00	2.5	The gravity model: econometric specification Bilateral trade data
3	14.06.	Garcés-Iriarte	10:00-12:30	2.5	Gravity data, PTA data
4	14.06.	Fernández-Amador	13:30-16:00	2.5	Gravity econometric model: Fixed effects
5	15.06.	Fernández-Amador	10:00-12:30	2.5	Modeling endogeneity-1 Gravity econometric model: PPML
6	15.06.	Vogt Fernández-Amador	13:30-16:00	2.5	NTMs-1: Cross-section regression and AVTEs Modeling endogeneity-2
7	16.06	Vogt	10:00-12:30	2.5	NTMs-2: NTMs and PTAs
8	16.06	Fernández-Amador	13:30-16:00	2.5	Gravity econometric model: Dealing with zeros (HMR)
9	17.06	Fernández-Amador	10:00-13:00	3.0	Multilateral resistances revisited Going through the assignment

Day 1 (Monday, June 13 2022)

Morning: From theory to the structural gravity model
Lecturer: Octavio Fernández-Amador

Compulsory Reading Material

- van Bergeijk, P.A.G. and Brakman, S. 2010. Introduction: The comeback of the gravity model. In van Bergeijk, P. and Brakman, S. 2010. *The gravity model in international trade*. Cambridge: Cambridge University Press. Chapter 1.
- Yotov, Y. V., Piermartini, R., & Larch, M. 2016. *An Advanced Guide to Trade Policy Analysis: The Structural Gravity Model*. WTO iLibrary. Chapter 1.

Optional Reading Material

- Anderson, J.E. and van Wincoop, E. 2003. Gravity with gravitas: A solution to the border puzzle, American Economic Review 93. 170–192.
- Head, K. and Mayer, T. 2014. Gravity equations: Workhorse, toolkit, and cookbook. In Gopinath, G., Helpman, E. and Rogoff, K. (eds). *Handbook of International Economics*. Vol 4. Oxford: Elsevier B. V. Chapter 3.
- Shepherd, B. 2016. The gravity model of international trade: A user guide (An updated version). United Nations. Section 2.

Afternoon: The gravity model: econometric specification / Bilateral trade data
Lecturer: Octavio Fernández-Amador / Irene Garcés-Iriarte

Compulsory Reading Material

- Baltagi, B., Egger, Peter H. and Erhardt, K. 2017. The estimation of gravity models in international trade, chapter 11 in L. Matyas (ed.) *The Econometrics of Multidimensional Panels.* Theory and Applications. Cham: Springer International Publishing.
- Shepherd, B. 2016. The gravity model of international trade: A user guide (An updated version). United Nations. Section 3.
- Yotov, Y. V., Piermartini, R., & Larch, M. 2016. *An Advanced Guide to Trade Policy Analysis: The Structural Gravity Model*. WTO iLibrary. Chapter 1.

Optional

- Head, K. and Mayer, T. 2014. Gravity equations: Workhorse, toolkit, and cookbook. In Gopinath, G., Helpman, E. and Rogoff, K. (eds). *Handbook of International Economics*. Vol 4. Oxford: Elsevier B. V. Chapter 3.
- Yotov, Y. V. 2012. A simple solution to the distance puzzle in international trade, Economics Letters 117(3), 794–798.

Day 2 (Tuesday, June 14 2022)

Morning: Gravity data, PTA data
Lecturer: Irene Garcés-Iriarte

Compulsory Reading Material

- Conte, M., Cotterlaz, P., & Mayer, T. (2021). The CEPII gravity database. CEPII: Paris, France.

Optional Reading Material

- Dür, A., Baccini, L. & Elsig, M. 2014. The design of international trade agreements: Introducing a new dataset, Rev Int Organ 9, 353–375.
- Hofmann, C., Osnago, A., & Ruta, M. 2019. The content of preferential trade agreements, World Trade Review 18(3), 365–398.
- Baier-Bergstrand, EIA database. Data construction methodology document at https://sites.nd.edu/jeffrey-bergstrand/database-on-economic-integration-agreements/
- WTO regional's trade agreement database. User guide documentation at https://rtais.wto.org/UI/PublicMaintainRTAHome.aspx

Afternoon: Gravity econometric model: Fixed effects
Lecturer: Octavio Fernández-Amador

Compulsory Reading Material

- Baldwin, R. and Taglioni, D. 2007. Trade effects of the Euro: A comparison of estimators, Journal of Economic Integration 22. 780–818.
- Baltagi, B.H., Egger, P. and Pfaermayr, M. 2003. A generalized design for bilateral trade flow models. Economics Letters 80. 391–397.
- Correia, S. and Constantine, N.: Help for *reghdfe* http://scorreia.com/help/reghdfe.html
- Yotov, Y. V., Piermartini, R., & Larch, M. 2016. *An Advanced Guide to Trade Policy Analysis: The Structural Gravity Model*. WTO iLibrary. Chapter 1.

Optional

- Balaszi, L., Matyas, L. and Wansbeek, T. 2017. Fixed Effects Models. In L. Matyas (ed.) The Econometrics of Multi-dimensional Panels. Theory and Applications. Cham: Springer International Publishing. Chapter 1. [!Advanced reading].
- Correia, S. 2016. A feasible estimator for linear models with multi-way fixed effects. March.
- Guimaraes, P. and Portugal, P. 2010. A Simple Feasible Alternative Procedure to Estimate Models with High-Dimensional Fixed Effects. Stata Journal 10(4), 628–649.
- Shepherd, B. 2016. The gravity model of international trade: A user guide (An updated version). United Nations. Section 3.

Day 3 (Wednesday, June 15 2022)

Morning: Modeling endogeneity-1 / Gravity econometric model: PPML
Lecturer: Octavio Fernández-Amador

Compulsory Reading Material

- Baier, S.L. and Bergstrand, J.H. 2007. Do free trade agreements actually increase members' international trade?, Journal of International Economics, 71. 72–95.
- Correia, S., Guimarães, P. and Zylkin, T. 2020. Fast Poisson estimation with high-dimensional fixed effects, The Stata Journal, 20. 95–115.
- Shepherd, B. 2016. The gravity model of international trade: A user guide (An up-dated version). United Nations. Section 4.1.
- Yotov, Y.V., Piermartini, R., & Larch, M. 2016. *An Advanced Guide to Trade Policy Analysis: The Structural Gravity Model*. WTO iLibrary. Chapter 1.

Optional Reading Material

- Santos Silva, J.M.C. and Tenreyro, S. 2006. The log of gravity, The Review of Economics and Statistics 88. 641--658.
- Santos Silva, J.M.C. and Tenreyro, S. 2011. Further simulation evidence on the performance of the Poisson pseudo-maximum likelihood estimator, Economic Letters 112. 220–222.

Afternoon: NTMs-1: Cross-section regression and AVTEs / Modeling endogeneity-2
Lecturer: Achim Vogt / Octavio Fernández-Amador

Compulsory Reading Material

- Egger, P., Francois, J. Manchin, M. and Nelson, N. 2015. Non-Tariff Barriers, Integration and the Transatlantic Economy, *Economic Policy* 30, no. 83. 539–84.
- Wooldridge, Jeffrey M. 2015. Control function approach in applied econometrics, Journal of Human Resources 50. 420–445. [Only Sections I and II].

Optional

- Baier, S.L. and Bergstrand, J.H. 2002. On the endogeneity of international trade flows and free trade agreements. Manuscript.
- Baier, S.L. and Bergstrand, J. H., 2004. Economic determinants of free trade agreements, Journal of International Economics 64. 29–63.
- Egger, P., Larch, M, Staub, K.E. and Winkelmann, R. 2011. The Trade Effects of Endogenous Preferential Trade Agreements, *American Economic Journal: Economic Policy* 3, no. 3. 113–43.
- Limao, N. "Preferential Trade Agreements." In *Handbook of Commercial Policy*, 1:279–367. Elsevier, 2016.
- UNCTAD. "UNCTAD TRAINS: The Global Database on Non-Tariff Measures." Geneva: UNCTAD, 2017.

Day 4 (Thursday, June 16 2022)

Morning: NTMs-2: NTMs and PTAs
Lecturer: Achim Vogt

Compulsory Reading Material

- Heid, B., Larch, M. and Yotov, Y.V. 2021. Estimating the Effects of Non-Discriminatory Trade Policies within Structural Gravity Models, Canadian Journal of Economics/Revue Canadienne d'économique 54, no. 1 (2021): 376–409.
- Xiong, B. and John Beghin. 2014. Disentangling Demand-Enhancing and Trade-Cost Effects of Maximum Residue Regulations, Economic Inquiry 52, no. 3. 1190–1203.

Optional Reading Material

- Breinlich, Holger, Valentina Corradi, Nadia Rocha, Michele Ruta, J.M.C. Santos Silva, and Tom Zylkin. 2021. Machine Learning in International Trade Research: Evaluating the Impact of Trade Agreements. Working Paper. Policy Research Working Paper. Washington DC: World Bank.
- Cadot, O. and Gourdon, J. 2016. Non-Tariff Measures, Preferential Trade Agreements, and Prices: New Evidence, Review of World Economics 152, no. 2. 227–49.
- Disdier, A.-C., and Fugazza, M. 2020. *A Practical Guide to the Economic Analysis of Non-Tariff Measures*. UN.
- Kinzius, L., Sandkamp, A. and Yalcin, E. 2019. Trade Protection and the Role of Non-Tariff Barriers, Review of World Economics 29 January.
- Schmidt, J. and Steingress, W. 2019. No Double Standards: Quantifying the Impact of Standard Harmonization on Trade. Working Paper.
- Fontagne, L., Orefice G., Piermartini, R. and Rocha, N. Product Standards and Margins of Trade: Firm-Level Evidence, Journal of International Economics 97, no. 1. 29–44.

Afternoon: Gravity econometric model: Dealing with zeros (HMR)
Lecturer: Octavio Fernández-Amador

Compulsory Reading Material

- Shepherd, B. 2016. The gravity model of international trade: A user guide (An up-dated version). United Nations. Section 4.2.
- Yotov, Y. V., Piermartini, R., & Larch, M. (2016). *An Advanced Guide to Trade Policy Analysis: The Structural Gravity Model*. WTO iLibrary. Chapter 1.

Optional

- Baier, S.L. and Bergstrand, J.H. 2002. On the endogeneity of international trade flows and free trade agreements. Manuscript.
- Baier, S.L. and Bergstrand, J.H. 2004. Economic determinants of free trade agreements, Journal of International Economics 64. 29–63.
- Egger, P., Larch, M, Staub, K.E. and Winkelmann, R. 2011. The Trade Effects of Endogenous Preferential Trade Agreements, *American Economic Journal: Economic Policy* 3, no. 3. 113–43.
- Helpman, E., Melitz, M. and Rubinstein, Y. 2008. Estimating trade flows: Trading partners and trading volumes, The Quarterly Journal of Economics CXXIII. 441–487.
- Wooldridge, J.M. 2016. Introductory Econometrics. Mason, OH: Cengage. Sixth edition. Chapter 17.

Day 5 (Friday, June 17 2022)

Morning: Multilateral resistances revisited / Going through the assignment
Lecturer: Octavio Fernández-Amador

Compulsory Reading Material

- Baier, S. and Bergstrand, J.H. 2009. Bonus vetus OLS: A simple method for approximating international trade-cost effects using the gravity equation, Journal of International Economics 77. 77–85.

Optional Reading Material

- Baier, S. and Bergstrand, J.H. 2010. Approximating general equilibrium impacts of trade liberalizations using the gravity equation, chapter 4 in van Bergeijk, P.A.G. and Brakman, S. (eds.) The Gravity Model in International Trade. Cambridge: Cambridge University Press.
- Egger, P. and Nelson, D. 2011. How bad is antidumping? Evidence from panel data, The Review of Economics and Statistics 93. 1374–1390.
- Francois, J. and Manchin, M. 2013. Institutions, infrastructure, and trade, World Development 46. 165–175.
- Head, K. and Mayer. T 2014. Gravity equations: Workhorse, toolkit and cookbook. In Gopinath, G., Helpman, E. and Rogoff K. (eds.) Handbook of International Economics vol. 4. Oxford: North-Holland. Chapter 3.