Econometrics of Trade Policy

Semester: Spring Semester 2025

Root Number: 477681

ECTS: **3 ECTs**

Lecturers: Octavio Fernández-Amador

Dates: July 14 – July 17, 2025

Audience

The course is intended for master students, as well as for officials from international and national institutions with an interest in quantitative analysis of trade. The course is also part of the Certificate of Advance Studies specialized in trade policy modeling (CAS TradeMod) aimed at professionals, researchers and graduate students (Masters and PhD) in the field of Economics, policy and social sciences. Undergraduate students will be considered only if their profile is outstanding. Students are assumed to have some familiarity with the basics of trade economics and econometrics.

Course description

This course addresses the quantitative economic analysis of international economic trade relations and policies. The 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 threefold. 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 participants will be introduced to the analysis of ex-post estimation of the effects of trade policy instruments, including preferential trade agreements (PTA) and non-tariff measures (NTM). The course will be applied. During the sessions, participants will practice with hands-on exercises on data availability and handling, and on the most common gravity estimation frameworks using some the most commonly applied datasets and software (Stata).

Lecturer

Octavio Fernández-Amador

Octavio Fernández-Amador is a senior researcher and lecturer 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. In these fields he has published articles in scientific journals. Octavio has collaborated as a research consultant with different institutions such as the World Bank, the World Trade Organization, the OECD, and the Austrian Nationalbank (OeNB).

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 in which the participants have to solve an exercise based on the contents discussed in class. Datasets and software code will be made available by the lecturer.

Literature

- Anderson, J.E. and van Wincoop, E. 2003. Gravity with gravitas: A solution to the border puzzle, American Economic Review, 93. 170--192.
- Baier-Bergstrand, EIA database. Data construction methodology document at https://sites.nd.edu/jeffrey-bergstrand/database-on-economic-integration-agreements/
- Baier, S.L. and Bergstrand, J.H. 2007. Do free trade agreements actually increase members' international trade?, Journal of International Economics, 71. 72--95.

- 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.
- Baldwin, R. and Taglioni, D. 2007. Trade effects of the Euro: A comparison of estimators, Journal of Economic Integration, 22. 780--818.
- 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.
- Conte, M., Cotterlaz, P., & Mayer, T. (2021). The CEPII gravity database. CEPII: Paris, France.
- Dür, A., Baccini, L. & Elsig, M. 2014. The design of international trade agreements: Introducing a new dataset. Rev Int Organ 9, 353--375.
- Egger, P., Francois, J., Manchin, M. and Nelson, D. 2015. "Non-Tariff Barriers, Integration and the Transatlantic Economy." *Economic Policy* 30. 539--84.
- Fernández-Amador, O., Francois, J. and Vogt, A. 2025. General equilibrium effects of technical non-tariff measures: Evidence from bilateral trade cost estimates. WTI, Mimeo.
- Fernández-Amador, O. and Garcés, I. 2025 (forthcoming). Modeling heterogeneous direct and third-country effects of the trade policy network. Review of International Economics.
- Head, K. and Mayer, T. 2014. "Gravity equations: Workhorse, toolkit, and cookbook". Chapter 3. In Gopinath, G., Helpman, E. and Rogoff, K. (eds). *Handbook of International Economics*. Vol 4. Oxford: Elsevier B. V.
- 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. 376--409.
- Hofmann, C., Osnago, A. and Ruta, M. 2019. The content of preferential trade agreements. World Trade Review, 18. 365--398.
- Santos Silva, J.M.C. and Tenreyro, S. 2006. The log of gravity, The Review of Economics and Statistics, 88. 641--658.
- Shepherd, B. 2016. The gravity model of international trade: A user guide (An updated version). United Nations. Section 2, 4.1-4.2.
- Wooldridge, J.M. 2015. Control function approach in applied econometrics, Journal of Human Resources, 50. 420–445. [only Sections I and II].
- WTO regional's trade agreement database. User guide documentation at https://rtais.wto.org/UI/PublicMaintainRTAHome.aspx
- Xiong, B. and Beghin, J. 2014. "Disentangling Demand-Enhancing and Trade-Cost Effects of Maximum Residue Regulations." *Economic Inquiry* 52. 1190--1203.
- Yotov, Y.V. 2012. A simple solution to the distance puzzle in international trade. Economics Letters, 117(3), 794--798.
- Yotov, Y.V., Piermartini, R. and Larch, M. 2016. *An Advanced Guide to Trade Policy Analysis: The Structural Gravity Model*. WTO iLibrary. Chapter 1.

Software requirements:

We will work in class and for the project with the software Stata.

Course Overview

Class	Date	Lecturer	Time	Hours	Topic
1	30.06	Fernández-Amador	10:00-12:30	2.5	From theory to the structural gravity model
2	30.06	Fernández-Amador	13:30-16:00	2.5	The gravity model: econometric specification Bilateral trade data
3	01.07	Fernández-Amador	10:00-12:30	2.5	Gravity data, PTA data
4	01.07	Fernández-Amador	13:30-16:00	2.5	Gravity econometric model: Fixed effects
5	02.07	Fernández-Amador	10:00-12:30	2.5	Modeling endogeneity-1 Gravity econometric model: PPML
6	02.07	Fernández-Amador	13:30-16:00	2.5	NTMs-1: Cross-section regression Modeling endogeneity-2
7	03.07	Fernández-Amador	10:00-12:30	2.5	NTMs-2: Reading output and AVTEs
8	03.07	Fernández-Amador	13:30-16:00	2.5	Multilateral resistances revisited Going through the assignment