Thematic Course
PhD in "Scienze Economiche e Statistiche"
SEAS Department
University of Palermo

Academic Year	2023-2024
Subject	Identification of Shocks and Causal Effects in Macroeconomics
Instructors	Davide Furceri, Pietro Pizzuto, Luca Bettarelli
Course description	<u>First Module (Davide Furceri)</u> This module will consist of 10 hours. It is at the level of an elective (second/third year) PhD course in a US university and requires knowledge of econometrics and inferential statistics—e.g., Wooldridge's Econometric Analysis of Cross Section and Panel Data. The lecture will begin by defining what a macroeconomic shock is. It then summarizes the many tools used for identifying macroeconomic shocks; first moment shocks such as those associated with fiscal and monetary policy, and productivity; and second moment shocks such as uncertainty. It will show the method used in macroeconomic to compute impulse responses of the economic variables to these shocks. It also highlights some of the complications and pitfalls, such as the effects of foresight and nonlinearities. It will finally review approaches to identify structural shocks and/or exogenous shocks. <u>Second module (Pietro Pizzuto)</u> This module will consist of 5 hours of laboratory in which some of the methods and techniques introduced in the first module will be practically applied using existing databases and the software STATA. Specific attention will be paid to estimating ADL (Romer and Romer, 2010), VAR (Blanchard and Katz, 1992) and local projection (Jordà, 2005) models. Suggestions on how deal with endogeneity and nonlinearities will be also provided in the context of the local projection approach. <u>Third Module (Luca Bettarelli)</u> This module will consist of 5 hours. It will apply the theoretical and empirical competences acquired in other modules to a topic that is at the core of the current economic and political debate: climate change. The module will review existing data to evaluate the impact of climate change and climate change policies (i.e., the shock) on national and subnation economic outcome (OECD, 2021; IRENA, 2022; Naqvi, 2021). Moreover, it will show how to further disaggregate the level of analysis by matching geospatial weather-related data with firm data (Karney, 2011).
Learning Objectives	Students completing this course should be able to: • Learn the key issues related to identification in macroeconomics; • Discuss the relevant literature on the topic; • Estimate the relevant models discussed in the labs;

Suggested readings	First Module • Wooldridge, J. M. (2015). Introductory econometrics: A modern approach. Cengage learning. • Ramey, V. A. (2016). Macroeconomic shocks and their propagation. Handbook of macroeconomics, 2, 71-162. Available here: https://econweb.ucsd.edu/~vramey/research/Shocks_HOM_Ramey_published_corrected.pdf Conley, Timothy, Christian Hansen and Peter Rossi (2012). "Plausibly Exogenous," Review of Economics and Statistics 94, 260-272. Second Module • Jordà, Ò. (2005). Estimation and inference of impulse responses by local projections. *American Economic Review*, 95(1), 161-182. • Furceri, D., Loungani, P., & Pizzuto, P. (2022). Moving closer? Comparing regional adjustments to shocks in EMU and the United States. Journal of International Money and Finance, 120, 102282. • Blanchard, O. J., Katz, L. F., Hall, R. E., & Eichengreen, B. (1992). Regional evolutions. Brookings papers on economic activity, 1992(1), 1-75. • Romer, C. D., & Romer, D. H. (2010). The macroeconomic effects of tax changes: estimates based on a new measure of fiscal shocks. American Economic Review, 100(3), 763-801. • Auerbach, A. J., & Gorodnichenko, Y. (2012). Fiscal multipliers in recession and expansion. In Fiscal policy after the financial crisis (pp. 63-98). University of Chicago Press. • Jordà, Ò., & Taylor, A. M. (2016). The time for austerity: estimating the average treatment effect of fiscal policy. The Economic Journal, 126(590), 219-255. Third Module • IRENA (2022). Renewable Technology Innovation Indicators: Mapping progress in costs, patents and standards, International Renewable Energy Agency, Abu Dhabi. ISBN: 978-92-9260-424-0 • Karney C.F. (2011). Geodesics on an ellipsoid of revolution, Feb. 2011; preprint arxiv:1102.1215. • OECD. (2021). Assessing the Economic Impacts of Environmental Policies. Evidence from a Decade of OECD Research. *OECD Publishing, Paris.* • Naqvi, A. (2021). Decoupling trends of emissions across EU regions and the role of environmental policies. Journal of Cleaner Production, 323.
Course Activity	20h (10 theory + 10h labs)
Credits	4
Assessment Method	Homework; Replication of an academic paper.
Teaching Methods	Theoretical lectures and practical classes using STATA.
Calendar	Starting in November 2023
Contacts	davide.furceri@unipa.it; pietro.pizzuto02@unipa.it; luca.bettarelli@unipa.it