PSCI 587: Structural Modeling and Estimation

Fall 2023
TR 11:05am–12:20pm
Harkness 329

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Office Hours: M 1:00pm–3:00pm

By blending formal theory and statistical inference, structural models enable social scientists to conduct rich analyses of how institutions and public policy shape individual or collective decision-making. The structural approach to empirical research is particularly useful in settings where more traditional methods cannot be applied, such as when agents behave strategically or when we wish to predict the consequences of never-before-observed policy interventions. This course covers the fundamentals of structural modeling and estimation, running the gamut from individual choice to strategic interaction, both static and dynamic. Depending on student interest, applications from political science, economics, finance, and marketing may be considered, but emphasis will be placed on the methodology with the aim of helping students expand their research toolkit.

Prerequisites: Students are expected to have taken PSCI 404, 405, 407, and 408, or equivalent graduate courses in another department. While PSCI 584 is not required, students unfamiliar with games of incomplete information should be prepared to learn the material on their own as needed for the course.

Computing: Structural models rarely admit estimation using canned routines in popular statistical software (e.g., SPSS, Stata). Familiarity with a programming language (e.g., Matlab, Python, R) is therefore indispensable for structural estimation. Students should be prepared to acquire the necessary programming skills.

Grading:

- Class participation.

- Assignments during the course of the semester.

- Presentation of a paper from the reading list.

- Presentation of a research proposal (20 minutes), accompanied by a written paper outline (due on 12/15).

Reading:

- Reynaert, M. and Verboven, F. (2014). Improving the performance of random coe cients demand models: The role of optimal instruments. *Journal of Econometrics*, 179:83–98.

- Gandhi, A. and Houde, J.-F. (2020). Measuring Substitution Patterns in Di erentiated-Products Industries. Working Paper.

- Berry, S. and Haile, P. (2016). Identification in Di erentiated Products Markets. *Annual Review of Economics*, 8:27–52.

- **Application**: Iaryczower, M., Kim, G., and Montero, S. (2020). Representation Failure. Working Paper.

2. Discrete Games, Partial Identification

- Ciliberto, F. and Tamer, E. (2009). Market Structure and Multiple Equilibria in Airline Markets. *Econometrica*, 77(6):1791–1828.

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- Kawai, K. and Watanabe, Y. (2013). Inferring Strategic Voting. *American Economic Review*, 103(2):624–662.

- Acemoglu, D., García-Jimeno, C., and Robinson, J. A. (2015). State Capacity and Economic Development: A Network Approach. *American Economic Review*, 105(8):2364–2409.

- Weese, E. (2015). Political mergers as coalition formation: An analysis of the *Heisei* municipal amalgamations. *Quantitative Economics*, 6:257–307.

- Francois, P., Rainer, I., and Trebbi, F. (2015a). How Is Power Shared in Africa? *Econometrica*, 83(2):465–503.

- Francois, P., Rainer, I., and Trebbi, F. (2015b). The Dictator's Inner Circle. Working Paper.

- Kawai, K. and Sunada, T. (2015). Campaign Finance in U.S. House Elections. Working Paper.

- Kang, K. (2016). Policy Influence and Private Returns from Lobbying in the Energy Sector. *Review of Economic Studies*, 83(1):269–305.

- García-Jimeno, C. (2016). The Political Economy of Moral Conflict: An Empirical Study of Learning and Law Enforcement Under Prohibition. *Econometrica*, 84(2):511–570.

- Montero, S. (2016). Going

- López-Moctezuma, G. (2019). Sequential Deliberation in Collective Decision-Making: The Case of the FOMC. Working Paper.

- Iaryczower, M., López-Moctezuma, G., and Meirowitz, A. (2019). Career Concerns and the Dynamics of Electoral Accountability. Working Paper.

- Canen, N., Kendall, C., and Trebbi, F. (2020). Unbundling Polarization. *Econometrica*, 88(3):1197–1233.

- Abramson, S. F. and Montero, S. (2020). Learning about Growth and Democracy. *American Political Science Review*, 114(4):1195–1212.

- Francois, P., Trebbi, F., and Xiao, K. (2020). Factions in Nondemocracies: Theory and Evidence from the Chinese Communist Party. Working Paper.

- Cruz, C., Keefer, P., Labonne, J., and Trebbi, F. (2020). Making policies matter: Voter responses to campaign promises. Working Paper.

- Ciancio, A. and García-Jimeno, C. (2020). The Political Economy of Immigration Enforcement: Conflict and Cooperation under Federalism. Working Paper.

- Kang, K. and Silveira, B. S. (2020). Understanding Disparities in Punishment: Regulator Preferences and Expertise. Working Paper.

- Cooley, B. (2020). Trade Policy in the Shadow of Power: Theory and Evidence on Economic Openness and Coercive Diplomacy. Working Paper.

- Abramson, S. F., Cooley, B., and Lacina, B. (2020). How Wide is the Ethnic Border? Working Paper.

- Kenkel, B. and Ramsay, K. W. (2020). The Eective Power of Military Coalitions: A Unified Theoretical and Empirical Model. Working Paper.

- Gibilisco, M., Kenkel, B., and Rueda, M. R. (2020). Competition and Civilian Victimization. Working Paper.

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