PSC 571

Spring 2013

Quantitative Approaches to International Politics

Wed, 2-5pm

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PURPOSE: This course examines statistical issues relevant to the study of international politics. We will consider issues such as self selection, strategic decision making, geographic interdependence, temporal dynamics, and the operationalization of major concepts, such as power, democracy, and the similarity of states' interests. Of particular interest will be the use and limitations of dyadic data and cross-sectional time series data. This course may be used to fulfill either the methods or IR comp, but not both simultaneously.

PREREQUISITES: Students must have taken PSC 505 and PSC 572 (or a similar general IR course).

COURSE REQUIREMENTS:

- **Participation and Weekly Assignments (40%).** Each week, students will be responsible (1) for having done all the required readings, (2) for presenting one of those readings, and (3) for participating in our discussions. The student presentation should be in the form of LaTeX'd notes, a Beamer presentation, or a Powerpoint presentation. The presentation should include (a) a summary of the article's main points/contributions, (b) a detailed walk through the main model and/or technique, (c) a summary of the results, and (d) a short critique of the paper. Applied or theoretical problems will also be assigned from time to time based on the required readings. Students will be expected to have completed the assignment and should be prepared to present their results in class.

- **Final Paper (60%).** A final paper is due the last day of final exams. The paper should either develop a new statistical technique or apply advanced methods to the study of international relations. Except in very rare circumstances, the paper should employ real data and make a substantive contribution.

COURSE SCHEDULE AND READINGS:

0. **Course Organization**

   - Students should be familiar with methods literature on linear models, MLE, duration models, grouped binary duration models, selection models, and strategic models.

1. **Measuring Power**

   - Gregory F. Treverton, Seth G. Jones. 2005. "Measuring National Power." Conference Proceedings. RAND Corporation.
   - Singer, J. David, Stuart Bremer, and John Stuckey. 1972. "Capability Distribution, Uncertainty,

and Major Power War, 1820-1965." in Bruce Russett, ed. *Peace, War and Numbers.* Beverly Hills, CA: Sage.

- Singer, J. David. 1987. "Reconstructing the Correlates of War Dataset on Material Capabilities of States, 1816-1985." *International Interactions* 14:115-32.
- de Soysa, Indra, John R. Oneal, and Yong-Hee Park. "Testing Power-Transition Theory Using Alternative Measures of National Capabilities." *Journal of Conflict Resolution* 41(4):509-528.
- Memn, R. L., and D. Zinnes. 1988. "Validity of Power Indices." *International Interactions* 14:141-51.
- Baldwin, David A. 2002. "Power and International Relations." in Walter Carlsnaes, Thomas Risse and Beth A. Simmons., ed. *Handbook of International Relations.* Thousand Oaks, CA: Sage.

2. Measuring Democracy

- Marshall, Monty G. and Keith Jaggers. 2002. "POLITY IV PROJECT: Political Regime Characteristics and Transitions, 1800-2010, Dataset Users' Manual." Integrated Network for Societal Conflict Research (INSCR).
- Gleditsch, Kristian S., and Michael D. Ward. 1997. "Double Take: A Reexamination of Democracy and Autocracy in Modern Polities." *Journal of Conflict Resolution* 41(3):361-383.
- Jackman, Simon, and Shawn Treier. 2007. "Democracy as a Latent Variable." *American Journal of Political Science* forthcoming.
- Vreeland, James Raymond. 2007. "The Effect of Political Regime on Civil War: Unpacking Anocracy." *Journal of Conflict Resolution.*
- Jonathan Olmsted, Curtis S. Signorino, Jun Xiang. 2012. "Averaging Away the Effects: Aggregation Bias in Indices of Democracy." Working Paper. University of Rochester.

Recommended Reading:
- Elkins, Zachary. 2000. "Gradations of Democracy? Empirical Tests of Alternative Conceptualizations." *American Journal of Political Science* 44(2):293-300.

3. Binary Data and Cross-Sectional Time Series Dependence

- Gourevitch, Peter A., and David Lake 2001. "Research Design and Method in International Relations: Editors' Introduction." *International Organization* 55(2):439-440.
- Green, Donald P., Soo Yeon Kim, and David H. Yoon. 2001. "Dirty Pool." *International Organization.* 55(2):441-468.
- Oneal, John R., and Bruce Russett. 2001. "Clear and Clean: The Fixed Effects of the Liberal Peace." *International Organization* 55(2):469-485.
- Beck, Nathaniel N., and Jonathan Katz. 2001. "Throwing Out the Baby with the Bath Water: A Comment on Green, Kim, and Yoon." *International Organization* 55(2):487-495.
- King, Gary. 2001. "Proper Nouns and Methodological Propriety: Pooling Dyads in International Relations Data." *International Organization* 55(2):497-507.

4. Geography and Spatial Interdependence

- Ward, Michael D., and Kristian Skrede Gleditsch. 2002. "Location, Location, Location: An MCMC Approach to Modeling the Spatial Context of War and Peace." *Political Analysis* 10(3):244-260.
- Heagerty, Patrick, Michael D. Ward, and Kristian Skrede Gleditsch. 2002. "Windows of Opportunity: Window Subseries Empirical Variance Estimators in International Relations." *Political Analysis* 10(3):244-260.

- Beck, Nathaniel, Kristian Skrede Gleditsch, and Kyle Beardsley. 2006. "Space Is More than Geography: Using Spatial Econometrics in the Study of Political Economy." *International Studies Quarterly* 50(1):27-44.
- Franzese, Robert and Jude Hayes. 2007. "Spatial-Econometric Models of Cross-Sectional Interdependence in Political Science Panel and TCSD Data." *Political Analysis*. 15(2):140-164.

5. Dyads? Triads? Network Interdependence

- Hoff, Peter D. Hoff, and Michael D. Ward. 2004. "Modeling Dependencies in International Relations Networks." *Political Analysis* 12(2):160-175.
- Handcock, Mark S., Adrian E. Raftery, and Jeremy M. Tantrum. 2007. "Model-Based Clustering for Social Networks." *Journal of the Royal Statistical Society*. 170(2):301-354.
- Ward, Michael D., Randolph M. Siverson, and Xun Cao. 2007. "Disputes, Democracies, and Dependencies: A Reexamination of the Kantian Peace." *American Journal of Political Science* 51(3):583-601.
- Hays, Jude C., Aya Kachi, and Robert J. Franzese Jr. 2010. "A spatial model incorporating dynamic, endogenous network interdependence: A political science application." *Statistical Methodology*.
- Poast, Paul. 2010. "(Mis)Using Dyadic Data to Analyze Multilateral Events." *Political Analysis*.
- Poast, Paul. 2011. "War is K-adic." Working Paper.
- Cranmer, Skyler J. and Bruce A. Desmarais. 2011. "Inferential Network Analysis with Exponential Random Graph Models." *Political Analysis*. 19:66-86.
- Boemhke, Fred and Olga Chyzh. Working paper.

6. Rare Events

- King, Gary, and Langche Zeng. 2001. "Logistic Regression in Rare Events Data." *Political Analysis* 9(2):137-163.
- King, Gary, and Langche Zeng. 2001. "Explaining Rare Events in International Relations." *International Organization* 55(3):693-715.

7. Measuring the Similarity of States' Interests

- Bueno de Mesquita, Bruce. 1975. "Measuring Systemic Polarity." *Journal of Conflict Resolution* 19(2):187-216.
- Signorino, Curtis S., and Jeffrey M. Ritter. 1999. "Tau-b or Not Tau-b: Measuring the Similarity of Foreign Policy Positions." *International Studies Quarterly* 43(1):115-144.
- Bennett, D. Scott, and Matthew Rupert. 2003. "Comparing Measures of Political Similarity: An Empirical Comparison of Using S or tau-b in the Study of International Conflict." *Journal of Conflict Resolution* 47(3):367-393.
- Sweeney, Kevin and Omar M.G. Khesk. 2005. "The Similarity of States: Using S to Compute Dyadic Interest Similarity." *Conflict Management and Peace Science*. 22(2):165-87.

8. Ideal Point Estimation in International Relations

- Poole, Keith T. and Howard Rosenthal. 1985. "A Spatial Model for Legislative Roll Call Analysis." *American Journal of Political Science*. 29(2):357-384.
- Clinton, Joshua, Simon Jackman, and Douglas Rivers. 2004. "The Statistical Analysis of Roll Call Data." *American Political Science Review*. 98(2):355-370.
- Voeten, Erik 2000. "Clashes in the Assembly." *International Organization* 54(2):185-217.
- Voeten, Erik 2007. "The Politics of International Judicial Appointments: Evidence from the European Court of Human Rights." *International Organization* 61(4):669-701.

9. Residualization

- Bueno de Mesquita, Bruce, Alastair Smith, Randolph M. Siverson, and James D. Morrow. 2003. *The Logic of Political Survival*. Cambridge, MA: The MIT Press.
- Clarke, Kevin A., and Randall W. Stone. 2007. "Democracy and the Logic of Political Survival." *American Political Science Review* forthcoming.

10. Markov Transition Models

- Duncan, George T., and Randolph M. Siverson. 1975. "Markov Chain Models for Conflict Analysis: Preliminary Results from Sino-Indian Relations, 1959- 1964." *International Studies Quarterly* 19 (3):344-374.
- Jackman, Simon. 2000. "In and Out of War and Peace: Transitional Models of International Conflict." Working paper, Stanford University.
- Przeworkski, Adam, and James Vreeland. 2002. "A Statistical Model of Bilateral Cooperation." *Political Analysis* 10(2).
- Gleditsch, Kristian Skrede, and Michael D. Ward. 2006. "Diffusion and the International Context of Democratization." *International Organization* 60(4):911-933

11. Machine Learning

- Chapters 3, 5, 11 in Trevor Hastie, Robert Tibshirani, Jerome Friedman. *2009. Elements of Statistical Learning. Springer-Verlag.*
- Beck, Nathaniel, Gary King, and Langche Zeng. 2000. "Improving Quantitative Studies of International Conflict: A Conjecture." *American Political Science Review* 94:1 21-36.
- de Marchi, Scott, Gelpi Christopher, and Jeffrey D. Grynaviski. 2004. *American Political Science Review* 98(2):371-378.
- Beck, Nathaniel, Gary King, and Langche Zeng. 2004. "Theory and Evidence in International Conflict: A Response to de Marchi, Gelpi, and Grynaviski." *American Political Science Review* 98(2):379-389.
- Kenkel, Brenton and Curtis S. Signorino. 2012. "Data Mining for Theorists." Working paper. University of Rochester.

12. Forecasting in IR

- Feder, Stanley A. 2002. "Forecasting for Policymaking in the Post-Cold War Period." *Annual Review Political Science.* 5:111–25.
- Goldstone et al. 2010. "A Global Model for Forecasting Political Instability." *AJPS.* 54(1).
- Scholz, Jason B., Gregory J. Calbert, and Glen A. Smith. 2011. "Unravelling Bueno De Mesquita's Group Decision Model." Journal of Theoretical Politics. 23(4):510-531.
- Brandt, Patrick T., John R. Freeman, and Philip A. Schrodt. 2011. "Racing Horses: Constructing and Evaluating Forecasts in Political Science." Working paper.
- Montgomery, Jacob M., Florian M. Hollenbach and Michael D. Ward. 2012. "Improving Predictions Using Ensemble Bayesian Model Averaging." *Political Analysis.* 20: 271-291.
- Ulfelder, Jay. "Forecasting Political Instability: Results from a 'Tournament' of Methods." Working paper.

13. Surveys and Experiments

- Herrmann, Richard K, James F. Voss, Tonya Y. E Schooler, and Joseph Ciarrochi. 1997. "Images in International Relations: An Experimental Test of Cognitive Schemata." *International Studies*

Quarterly 41(3):403-433.
- Redd, Steven B. 2002. "The Influence of Advisers on Foreign Policy Decision Making: An Experimental Study" *Journal of Conflict Resolution* 46(3):335-364.
- Carpenter, Jeffrey P. 2003. "Bargaining Outcomes as the Result of Coordinated Expectations: An Experimental Study Of Sequential Bargaining." *Journal of Conflict Resolution* 47(2):119-139.
- Schneider Gerald, and Ulrike Sabrina Krämer. 2004. "The Limitations of Fair Division: An Experimental Evaluation of Three Procedures." *Journal of Conflict Resolution* 48()4:506-524.
- Tomz, Michael. 2007. "Domestic Audience Costs in International Relations: An Experimental Approach." *International Organization* 61(4):821-40.
- Tomz, Michael. 2007. "The Effect of International Law on Preferences and Beliefs." Working paper, Stanford University.

14. Structural Breaks

- Spirling, Arthur. 2007. "'Turning Points' in Iraq: Reversible Jump Markov Chain Monte Carlo in Political Science." *The American Statistician*, forthcoming.
- Spirling, Arthur. 2007. "Bayesian Approaches for Limited Dependent Variable Change Point Problems." *Political Analysis*, forthcoming.

Student presentations last class: May 1
Paper due last day of final exams: May 13