PL SC 497C: Statistical Analysis of Political Data: Political Violence

167 Willard, TR 6:30-7:45

James Honaker

317 Pond Lab – `tercer@psu.edu`

January 12, 2010

1 Introduction

There are two purposes to this class. The first is to teach you how to use numbers and data to accurately construct and test theories about social science. The second is to help you learn how to incorporate your statistical knowledge and data skills into a convincing and truthful argument that anyone, even without statistical knowledge, would be persuaded by. These are skills that are important throughout numerous fields, not only modern political science, but business and law and public policy, and of course, the other social sciences.

The goal is not just to learn math or statistics, but to learn how to reason through problems using data, how to think about and not be fooled by data, and how to use your statistical knowledge to frame convincing arguments. To learn these skills we will spend a lot of time immersed in data sets, and learn through application. We will use data just as extensively as in PS6, but we will investigate each dataset much more thoroughly and exhaustively, sometimes spending several weeks on one dataset. The key thing to remember throughout this class is that we will learn numerous formulas and techniques, but these should always supplement and aid our own reasoning about the problem, never replace it. Statistics are tools and not robots. We use them, we don't just turn them on. And of course the more we practice using them the better we will become.

The class will alternate between lectures (Tuesdays) and more computer oriented work (Thursdays) where there will be some lecture, some demonstration using the computers, and some hands on problem solving applications by students. Thursdays may move into a computer lab.

2 Substantive Focus

The central theme of this course is "Political Violence" which we can broadly define as the residents of a country using force to try to change their political process. Such things might include violent protests, riots, coup attempts, civil wars. We will try and understand what causes people in a country to use

violence to change their government, when is it successful and when not, what are the long run results, both positive and negative, and when and how can factions that opposed each other cooperate in the next government that forms.

However, this class is quantitatively focused. We will simultaneously be learning statistical tools that will help us probe these questions. This statistical focus though, will inevitably shape what questions we ask, as questions for which no data exists, or more "normative" questions for which no data could ever address, we will sometimes sidestep in favor of questions that can be understood or learned about by exploring the data the world gives us. At the back of our minds we should remain aware of how the questions we are addressing are shaped by the data we have available, and look out for important questions we have missed along the way.

3   Grading

Grades will be based on problem sets (15 percent), data essays (40 percent) and a final paper (45 percent).

4   Data Essays and Final Paper

The data essays will be short essays (two to four pages) that use the techniques we have learned to answer problems in the datasets we are currently exploring. People in this class should be familiar with the structure and purpose of data essays. The key purpose is to use and combine correct statistical methods in support of a reasoned argument, and learn to relate your statistical insights to a nontechnical, general audience.

For the final paper, we have two large and very new datasets that have emerged from enormous (and very expensive) projects in political science. These datasets contain large numbers of variables, and have not been extensively explored. There are interesting questions in these datasets that may never have been addressed by anyone before. There is a genuine opportunity for original research, and a paper that is both well written, and fortunate or lucky enough to stumble across an interesting result, might be publishable in a journal in the social sciences. This is the standard to which you should aim.

The final paper will be worked on in stages, with a proposal submitted first, and then preliminary results, then drafts of key sections, all before the final paper is turned in at the end of the quarter. The various stages of the final paper will all accumulate into the final grade.

Some of the homework and some of the work with the data essays will require the use of Stata, which will probably require using computers in the lab, or in other labs around campus where Stata is installed. Students may work in pairs on homework and data assignments, however, all data assignments must be individually written and results and figures individually generated. Final papers and their composite parts must be written individually, although I encourage you to discuss your ideas and problems as you tackle your final paper with your classmates.

5   Agenda of Statistical Topics

There are several topics, such as causality and substantive significance, that we will discuss so continuously they will seem like a class mantra. However, there are more specific statistical topics and skills that we will learn in a specific order. These are as follows:

- Week 1: *Review of Probability*
  The normal distribution, the central limit theorem, bivariate regression.

- Weeks 2, 3: *Review of Multivariate Regression*
  Relationships between variables, Z-factors, dummy variables, interpreting slopes, pooling problems.

- Weeks 4, 5: *Nonlinear Variables*
  Squared terms, logged variables, local regression.

- Week 6: *Interaction Terms*
  Interactions between variables, constructing scales, mutually exclusive variables, fixed effects.

- Weeks 7: *Poisson Regression*
  Models for dependent variables that are ordinal counts of events.

- Week 8, 9: *Predicted Values and First Differences*
  Explaining coefficients in non-linear models.

- Week 10, 11: *Logit and Probit Models*
  Models for dichotomous dependent variables.

- Week 12 and beyond: *Further Application and Work on Final Papers*

Most of these topics are succinctly covered in the text for the class *Generalized Linear Models* by Hoffman. Hoffman also gives examples of the related Stata commands for his examples. Additionally, notes and example analyses will be handed out. Each week we will match our increased statistical knowledge against various data sets that have substantive political questions that can be answered with the skills we are learning.

6   Agenda of Readings

Weeks 2 and 3 Theories of Violence

Gurr, Ted. 1968. "Psychological Factors in Civil Violence." *World Politics* 20(2):245-278.

Huntington, Samuel P. 1993. "The Clash of Civilizations?" *Foreign Affairs* 93(2):22-49.

Moore, Will H. 1995. "Rational Rebels: Overcoming the Free-Rider Problem." *Political Research Quarterly* 48(2):417-454.

Tilly, Charles. 2003. *The Politics of Collective Violence.* Cambridge University Press, Cambridge.

Optional:

Muller, Edward N. and Karl-Dieter Opp. 1986. "Rational Choice and Rebellious Collective Action." *The American Political Science Review* 80(2):471-488.

Weeks 4, 5 and 6 Cross-National Aggregate Measures of Violence

Hibbs, Douglas A. 1973. *Mass Political Violence: A Cross-National Causal Analysis.* Wiley-Interscience, New York.

Muller, Edward N. and Mitchell A. Seligson. 1987. "Inequality and Insurgency." *American Political Science Review* 81(2):425-451.

King, Gary. 1995. "Replication, Replication" *PS: Political Science and Politics* 28(3):444-452.

Week 7 Northern Ireland

Thompson, J. L. P. 1989. "Deprivation and Political Violence in Northern Ireland, 1922-1985: A Time-Series Analysis." *Journal of Conflict Resolution* 33(4):676-699.

White, Robert W. 1993. "On Measuring Political Violence: Northern Ireland, 1969 to 1980." *American Sociological Review* 58(4):575-585.

Hayes, Benadette C. and Ian McAllister. 2001. "Sowing Dragon's Teeth: Public Support for Political Violence and Paramilitarism in Northern Ireland." *Political Studies* 49(5):901-922.

Week 8 - Additional Sources on Northern Ireland (Optional Readings)

Kovalcheck, Kassian. 1987. "Catholic Grievances in Northern Ireland: appraisal and judgement." *The British Journal of Sociology* 38(1):77-87.

Breadun, Deaglan de. 2001. *The Far Side of Revenge.* The Collins Press: Wilton, Cork, Ireland.

Cox, Michael, Adrian Guelke and Fiona Stephen (Editors). 2000. *A Farewell to Arms? From "long war" to long peace in Northern Ireland."* Manchester University Press: Manchester, England.

Sheehan, Maura and Tomlinson, Mike. 1999. *The Unequal Unemployed. Discrimination, unemployment and state policy in Northern Ireland.* Ashgate Publishing Ltd: Aldershot, England.

Howe, Leo. 1990. *Being Unemployed in Northern Ireland, An Ethnographic Study.* Cambridge University Press: Cambridge, England.

Weeks 9 and 10 Introduction to Civil War

Collier, P. and A. Hoeffler. 2002. "On the Incidence of Civil War in Africa" *Journal of Conflict Resolution* 46(1):13-28.

Fearon, James D. and David A. Laitin. 2004. "Ethnicity, Insurgency and Civil War" *American Political Science Review* 97(1):75-90.

Weeks 11 and 12 Natural Resources and Civil War

Fearon, James D. 2005. "Primary Commodity Exports and Civil War" *Journal of Conflict Resolution* 49(4):485-507.

Ross, Michael. 2003. "What Do We Know About Natural Resources and Civil War?" *Journal of Peace Research* 41(3).

Weeks 13 and 14 Ethnicity and Civil War

Sambanis, N. 2001. "Do Ethnic and Nonethnic Civil Wars Have the Same Causes? A Theoretical and Empirical Inquiry (Part 1)" *Journal of Conflict Resolution* 45(3):259-282.

Posner, Daniel N. 2004. "Measuring Ethnic Fractionalization in Africa" *American Political Science Review* 48(4):849-863.

Academic Dishonesty

The Department of Political Science, along with the College of the Liberal Arts and the University, takes violations of academic dishonesty seriously. Observing basic honesty in one's work, words, ideas, and actions is a principle to which all members of the community are required to subscribe.

All course work by students is to be done on an individual basis unless an instructor clearly states that an alternative is acceptable. Any reference materials used in the preparation of any assignment must be explicitly cited. Students uncertain about proper citation are responsible for checking with their instructor.

In an examination setting, unless the instructor gives explicit prior instructions to the contrary, whether the examination is in class or take home, violations of academic integrity shall consist but are not limited to any attempt to receive assistance from written or printed aids, or from any person or papers or electronic devices, or of any attempt to give assistance, whether the one so doing has completed his or her own work or not. Lying to the instructor or purposely misleading any Penn State administrator shall also constitute a violation of academic integrity.

In cases of any violation of academic integrity it is the policy of the Department of Political Science to follow procedures established by the College of the Liberal Arts.

Disabilities

The Pennsylvania State University encourages qualified people with disabilities to participate in its programs and activities and is committed to the policy that all people shall have equal access to programs, facilities, and admissions without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. If you anticipate needing any type of accommodation in this course or have questions about physical access, please tell the instructor as soon as possible. Reasonable accommodations will be made for all students with disabilities, but it is the student's responsibility to inform the instructor early in the term. Do not wait until just before an exam to decide you want to inform the instructor of a learning disability; any accommodations for disabilities must be arranged well in advance.