STV 4025
Quantitative Political Science
Spring 2014

Instructors: Håvard Strand & Håvard Mokleiv Nygård

Time and Location: Monday and Thursdays 11:15–13:00, Room 830

Seminar: Monday 14:15–16:00, HH PC-rom 035, with Jonas Nordkvelle

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Overview and Objectives

The aim of this course is to enable students to critically apply quantitative research methods unto political science problems. The course will introduce the students to a large range of statistical techniques that political scientists use in their analysis. Some of the techniques are fairly general, while others are develop for specific topics. The course will emphasis practical aspects such as execution of the analysis and presentation of results.

We will use **R**, a free statistical programming language. It is available at `www.r-project.org`. Here, you will also find a lot of useful information about **R**. I also recommend you to use Rstudio, `www.rstudio.org` for running **R** on your computer.

Assessment

There will be 5 written assignments. Each assignment will be based on a published article and a dataset. The task will be to replicate the study and extend it by using the techniques demonstrated in the lectures. The students need to submit a fully functional script and a textfile of 500-1000 words that describes the purpose of the study, the method(s) and the results. **The deadline for the assignments will be before the first lecture of the following week.** The assignments are to be submitted in fronter. All five assignments must be submitted in order to pass the course. The will be no final exam.

Required Texts

- Long, S. J. (1997). *Regression Models for Categorical and Limited Dependent Variables*. SAGE, London
- Box-Steffensmeier, J. M. and Jones, B. S. (2004). *Event History Modeling: A Guide to Social Scientists*. Cambridge University Press

Useful texts for further study

- Moore, W. H. and Siegel, D. A. (2013). *A Mathematics Course for Political and Social Research*. Princeton: Princeton Univeristy Press
- King, G. (1989). *Unifying Political Methodology: The Likelihood Theory of Statistical Inferences*. Cambridge Univerisity Press, Cambridge
- Fox, J. and Weisberg, S. (2011). *An R Companion to Applied Regression*. Sage, 2 edition
- Greene, W. (2011). *Econometric Analysis*. Macmillan, New York, 7 th. ed. edition

Course Outline

The main text for the first part of the course is Long, S. J. (1997). *Regression Models for Categorical and Limited Dependent Variables*. SAGE, London. This book provides an accessible overview of generalized linear models. We will consider both standard and multilevel versions of such models. For the week on event history models, we will rely on Box-Steffensmeier, J. M. and Jones, B. S. (2004). *Event History Modeling: A Guide to Social Scientists*. Cambridge University Press as it has established itself as the key text of event history models in political science. In addition, multiple articles are assigned. Some of these will be theoretical, while others will be applied.

Learning R

There are several free resources for learning R on the R-webpage. In addition, there are many books available, a selection is listed below. For the models we consider in this class, Høyland, B. (2012). R-notes for quantitative political science will provide computing notes. These notes will be developed as we move along. Most of the estimators discussed in this course is available in the Zelig package (KING!)

Useful R books

- Fox, J. and Weisberg, S. (2011). *An R Companion to Applied Regression*. Sage, 2 edition
- Matloff, N. (2011). *The Art of R Programming: A Tour of Statistical Design*. No Starch Press: San Fransisco

1 Generalized linear models

In the first week of the course we will review the standard OLS model, and expand this to cover interacted variables, as well as spatial and temporal autocorrelation. Issues connected to missing data will also be discussed.

OLS and beyond (Week 1; Strand)

- Long, S. J. (1997). *Regression Models for Categorical and Limited Dependent Variables*. SAGE, London (Chs. 1 - 2)
- Brambor, T., Clark, W. R., and Golder, M. (2006). Understanding interaction models: Improving empirical analyses. *Political Analysis*, 14(1):63 – 82
- Beck, N. and Katz, J. N. (1995). What to do (and not to do) with time-series cross-section data. *American Political Science Review*, 89:634 – 647
- Ward, M. D. and Gleditsch, K. S. (2008). *Spatial Regression Models*. London: SAGE (Chs. 1 - 3)
- Honaker, J. and King, G. (2010). What to do about missing values in time-series cross-section data. *American Journal of Political Science*, 54(2):561 – 581

Applications

- Burnside, C. and Dollar, D. (2000). Aid, policies, and growth. *American Economic Review*, 90(4):847–868
- Easterly, W., Levine, R., and Roodman, D. (2004). Aid, politices, and growth: Comment. *American Economic Review*, 94(3):774–779
- Replication data: `AidGrowth`

Count models (Week 2; Strand)

- Long, S. J. (1997). *Regression Models for Categorical and Limited Dependent Variables*. SAGE, London (Chs. 8)

Application

- Gleditsch, N. P. and Strand, H. (2003). Posting your data: Will you be scooped or will you be famous? *International Studies Perspectives*, 4(1):89–97
- Replication data `JPRCitations.dta`

Binary dependent variable (Week 3; Nygård)

- Long, S. J. (1997). *Regression Models for Categorical and Limited Dependent Variables*. SAGE, London (Chs. 3 - 4)
- Ward, M. D., Greenhill, B. D., and Bakke, K. M. (2010). The perils of policy by p-value: Predicting civil conflicts. *Journal of Peace Research*, 47(4):363 – 375
- Greenhill, B., Ward, M. D., and Sacks, A. (2011). The separation plot: A new visual method for evaluating the fit of binary models. *American Journal of Political Science*, 55(4):990 – 1102

- Kuhn, M. and Johnson, K. (2013). *Applied Predictive Modeling*. New York: Springer (Ch. 11)

Applications

- Collier, P. and Hoeffler, A. (2004). Greed and grieviance in civil war. *Oxford Economic Papers*, 56:563 – 595
- Replication data: `CollierHoeffler2004.dta`

Ordered and multinomial dependent variable (Week 4; Nygård)

- Long, S. J. (1997). *Regression Models for Categorical and Limited Dependent Variables*. SAGE, London (Chs. 5 - 6)
- Nordås, R. and Davenport, C. (2013). Fight the youth: Youth bulges and state repression. *American Journal of Political Science*, 57(4):926–940
- Jones, B. and Westerland, C. (2006). Order matters (?): Alternatives to conventional practices for ordinal categorical response variables. Unpublished Manuscript, Univeristy of Arizona
- Alvarez, M. R. and Nagler, J. (1998). When politics and models collide: Estimating models of multiparty elections. *American Journal of Political Science*, 42(1):55 – 96

Applications

- Hegre, H., Karlsen, J., Nygård, H. M., Strand, H., and Urdal, H. (2013). Predicting armed conflict, 2010–2050. *International Studies Quarterly*, 57:250–270
- Replication data: `Prediction2013.dta`

Event history models (Week 5; Strand)

- Box-Steffensmeier, J. M. and Jones, B. S. (2004). *Event History Modeling: A Guide to Social Scientists*. Cambridge University Press
- Licht, A. A. (2011). Change comes with time: Substantive interpretation of nonproportional hazard in event history analysis. *Political Analysis*, 19(2):227 – 243

Applications

- Gates, S., Hegre, H., Jones, M. P., and Strand, H. (2006). Institutional inconsistency and political instability: Polity duration, 1800 - 2000. *American Journal of Political Science*, 50(4):893 – 908
- Replication data `AJPS2006Institutions.dta`