Logistic Regression Analysis:
Introduction and Applications
Dr. Harold Clarke
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June 5-6, 2017
9:00am – 4:30pm

Workshop Outline

Social scientists and policy analysts frequently wish to study categoric variables such as the choices that people make in economic, political and social settings. This applied workshop teaches researchers how to conduct statistical analyses with categoric dependent variables using the popular Stata and R programs. Starting with the linear regression model, the workshop focuses on binomial logit models, ordinal logit models, the multinomial logit model and the mixed logit model. Examples using national survey data on voting in the 2016 UK Brexit referendum, the 2015 Canadian federal election and the 2016 US presidential election are presented. Assuming only familiarity with introductory statistics, the workshop emphasizes how to do multivariate analyses of categoric dependent variables with real-world data, to interpret results and present them in informative graphs.

Required Reading

Note: There are a lot of possibilities, but Long and Freese is a good choice because it discusses in detail how to use Stata to analyze models with categoric dependent variables and interpret the results using the powerful Stata Margins command.

Long, J. Scott and Jeremy Freese. 2014. Regression Models for Categorical Dependent Variables Using Stata. 3rd edition. College Station, TX: Stata Press.
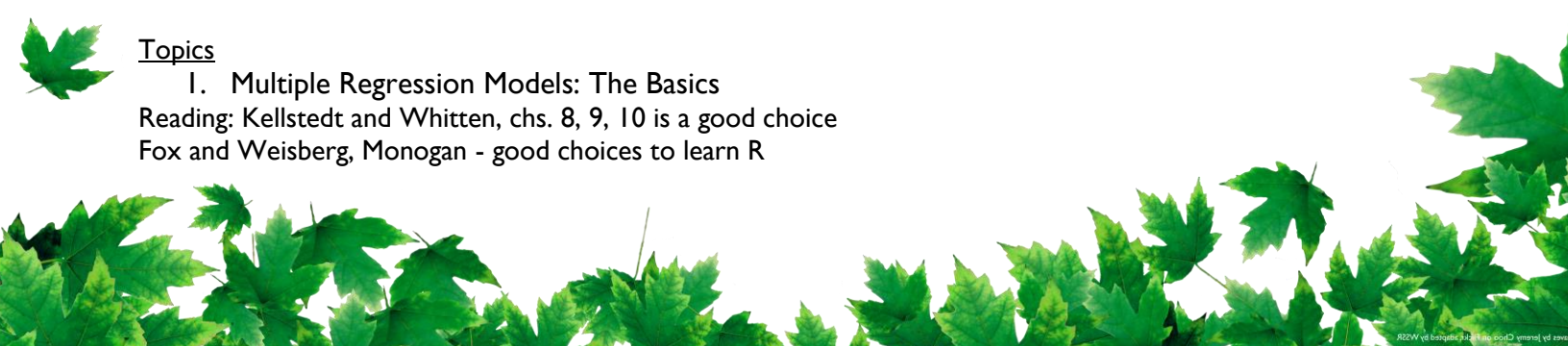*Available on 3 hour loan – Webster Library*

Supplementary Readings

To assist students wishing to learn more about various topics, additional readings are listed at the end of the syllabus.

Topics
1. Multiple Regression Models: The Basics
Reading: Kellstedt and Whitten, chs. 8, 9, 10 is a good choice
Fox and Weisberg, Monogan - good choices to learn R

2. Binomial Logit and Probit Models Reading: Long and Freese, ch. 5
supplementary: Clarke, Goodwin and Whiteley, 2017, ch. 7

3. Interpreting Results
Reading: Long and Freese, chs 4 and 6 Ai and Norton, 2003
Brambor, Clark and Golder, 2006 Clarke, Elliott and Stewart, 2016

4. Ordinal Logit and Probit Models Reading: Long and Freese, ch. 7
Williams, 2010

5. The Multinomial Logit Model Reading: Long and Freese, ch. 8
supplementary: Clarke et al., 2016

6. The Mixed Logit Model - Very Cool! Reading: Glasgow, 2001
Clarke et al. 2009, ch. 5
supplementary: Hensher, Rose and Green, 2005; Train, 2009

Recommended Readings

Acock, Alan. 2014. A Gentle Introduction to Stata. 4th Edition. College Station, TX: Stata Press.
This is a good book to start learning about Stata.

Ai, Chunrong and Edward C. Norton. 2003. "Interaction Terms in Logit and Probit Models." Economic Letters 80: 123-29.

Brambor, Thomas, William Clark and Matt Golder. 2006. "Understanding Interaction Models: Improving Empirical Analyses." Political Analysis 14: 63-82.

Clarke, Harold D., Matthew Goodwin and Paul Whiteley. 2017. Brexit—Why Britain Voted to Leave the European Union. Cambridge: Cambridge University Press.

Clarke, Harold D., Euel Elliott and Marianne C. Stewart. 2016. "Heuristics, Heterogeneity and Green Choices: Voting on California's Proposition 23." Political Science Research and Methods, 4: forthcoming.

Clarke, Harold D., Jason Reifler, Tom Scotto and Marianne C. Stewart. 2016. "It's Spring Again! Voting in the 2015 Federal Election." In Jon Pammett and Christopher Dornan, eds. The 2015 Canadian Federal Election. Toronto: Dundurn Press.

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Clarke, Harold D., David Sanders, Marianne C. Stewart and Paul Whiteley. 2009. Performance Politics and the British Voter. Cambridge: Cambridge University Press.

Fox, John and Harvey Sanford Weisberg. An R Companion to Applied Regression. 2nd Edition. Thousand Oaks, CA: Sage Publications, 2011. Excellent book for learning R.

Glasgow, Garett. 2001. "Mixed Logit Models for Multiparty Elections." Political Analysis 9: 116-36.

Hensher, David A., John M. Rose and William H. Greene. 2005. Applied Choice Analysis: A Primer. Cambridge: Cambridge University Press.

Kellstedt, Paul and Guy Whitten. 2013. The Fundamentals of Political Science Research. 2nd edition. Cambridge: Cambridge University Press.

King, Gary, Michael Tomz and Jason Wittenberg. 2000. "Making the Most of Statistical Analyses: Improving Interpretation and Presentation." American Journal of Political Science 44: 347-61.

Monogan, Jamie. 2016. Political Analysis Using R. New York: Springer. Great book to start learning R.

Tomz, Michael, Jason Wittenberg and Gary King. 2003. "Clarify: Software for Interpreting and Presenting Statistical Results." Cambridge, MA: Harvard University, Department of Government.

Train, Ken. 2009. Discrete Choice Models with Simulation. 2nd edition. Cambridge: Cambridge University Press.

Williams, Richard. 2010. "Fitting Heterogeneous Choice Models with OGLM." The Stata Journal 10: 540-67.