Sociology 740
John Fox
Winter 2014

Chapter 14

Do Exercise D14.2 for Long's data on attitude toward working mothers. The data are on the website for the AR text in the file `Moms-Long.txt`, with the codebook in the file `Moms-Long.pdf`. In particular, proceed as follows:

(1) Using the `polr` function in the **MASS** package, fit a proportional-odds logistic regression model to the data, regressing `workingMom` on the other variables in the data set. After reading the data from the data file, it is important to reorder the levels of `workingMom` to their natural order, `SD`, `D`, `A`, `SA`, since the default alphabetic ordering is inappropriate. Use the `Anova` function in the **car** package to perform likelihood-ratio tests for the terms in the model. What do you conclude? Finally, use the `allEffects` function in the **effects** package to construct effect displays for the terms in the model. Based on the model summary, likelihood-ratio tests, and effect plots, briefly describe the results.

(2) Repeat part (1) using the `multinom` function in the **nnet** package to fit the multinomial logistic regression model in place of the proportional-odds model. For the multinomial logistic regression model, it is difficult to interpret the individual regression coefficients, so base your interpretation of the results on the analysis of deviance (likelihood-ratio tests) for the model and the effect plots.

(3) Compare the adequacy of the proportional-odds and multinomial logit models in three ways, performing an approximate likelihood-ratio test contrasting the models; using the AIC; and using the BIC. Briefly, what conclusions do you draw?

(4) [optional] Compare the fitted probabilities produced by the proportional-odds and multinomial logit models. Are they similar?