Generalized Linear Regression in R - Part 1

Workshop Description

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246 Hesburgh Library

Overview

This workshop focuses on techniques when your outcome variable is not continuous or normally distributed. Such outcome variables are considerably more common in social science data than normally distributed outcome variables. We will examine **binary** and **ordered** outcome variable regression models in this workshop. (Part 2 of the workshop will be in the Spring 2023 semester and feature **nominal** and **count** outcome variable regression models.)

Prior Knowledge

The workshop is designed for individuals with experience using generalized linear regression in other statistical software (e.g., Stata, SPSS) and want to learn how to run generalized linear regression models in R. Further, it is assumed that individuals have a basic understanding of R. We will also be using R Markdown, but it is not critical for learning the material.

Software Details

Make sure you are using R 4.0 (the specific version should not matter). I advise using the RStudio IDE as it is very user-friendly (much more than R's GUI).

You should also install the following packages we are using prior to the workshop. To do so, run this code:

```
install.packages(c("tidyverse","rmarkdown","haven","GGally","ggeffects","brant"))
```

Workshop Plan

The workshop will review the topic, cover the main R functions, and go through a few live demos. Following the workshop, an annotated lab handout will be provided with a small problem set for you to practice on your own.

Workshop Delivery

This workshop will be offered in-person in 246 Hesburgh Library. (Note: depending on COVID-19 cases and university policy, this workshop may be delivered virtually over Zoom.) All workshop materials will be provided in a shared folder in Google drive.

Topics

The topics covered during the workshop include:

- Binary outcome models (logit/probit)
- Ordered outcome models (ordered logit/probit)
- Statistical significance and regression coefficient interpretation
- Visualizations of regression coefficients