# Presenting Analytical Results in LaTeX

Gento Kato

University of California, Davis

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**Abstract**

This sample document describes how you can present R results through LaTeX.

## 1 Start Using LaTeX

LaTeXgenerates beautifully formatted PDF file. Different from other text editors such as Word, LaTeXfile must be *compiled* to obtain the final product (PDF File, most of the time). To write raw LaTeXfiles, you need to learn its grammars and rules. While learning curve is somewhat steep, I believe it pays out in the end. In addition to the easy integration with R, it automates formatting and citations, which will save your time when you are reviewing papers.

There are two ways to start using LaTeX.

### 1.1 Compile Locally

The standard method to use LaTeXis to locally compile the file on your own computer. Even when you have no access to internet, this method will give you the power to generate PDF files.

1. Download TeX Distribution – TeX Live, MikTeX, or MacTeX (Mac Version of TeX Live) – to your computer

2. Install LaTeXEditor. I would recommend TeX Studio for the begining user.

3. Start!

### 1.2 Compile Online

Using web-based LaTeXeditor opens up the possibilities by making it possible to share the TeX files without worrying about local dependencies in compilation. Note that, though, if internet is slow or unavailable, you may have stressful time editing documents. The major editor here is Overleaf. You can just register their and can start editing immediately. Also, their documentation page is a very rich resource for learning what you can do in LaTeX.

### 1.3 Managing References

Automatic citation is one of the great benefits of using LaTeX. If you are interested in managing references in `.bib` or `.bibtex` format (the format compatible to LaTeX), you should look for either JabRef or hrefhttps://bibdesk.sourceforge.ioBibDesk (Mac Only). Some Reference Managers such as Mendeley and Zotero have an ability to export reference information in `.bib` format.

## 2 Dependent Variable

The dependent variable of interest is **politicalinterest**. Figure 1 shows the distribution of this variable.

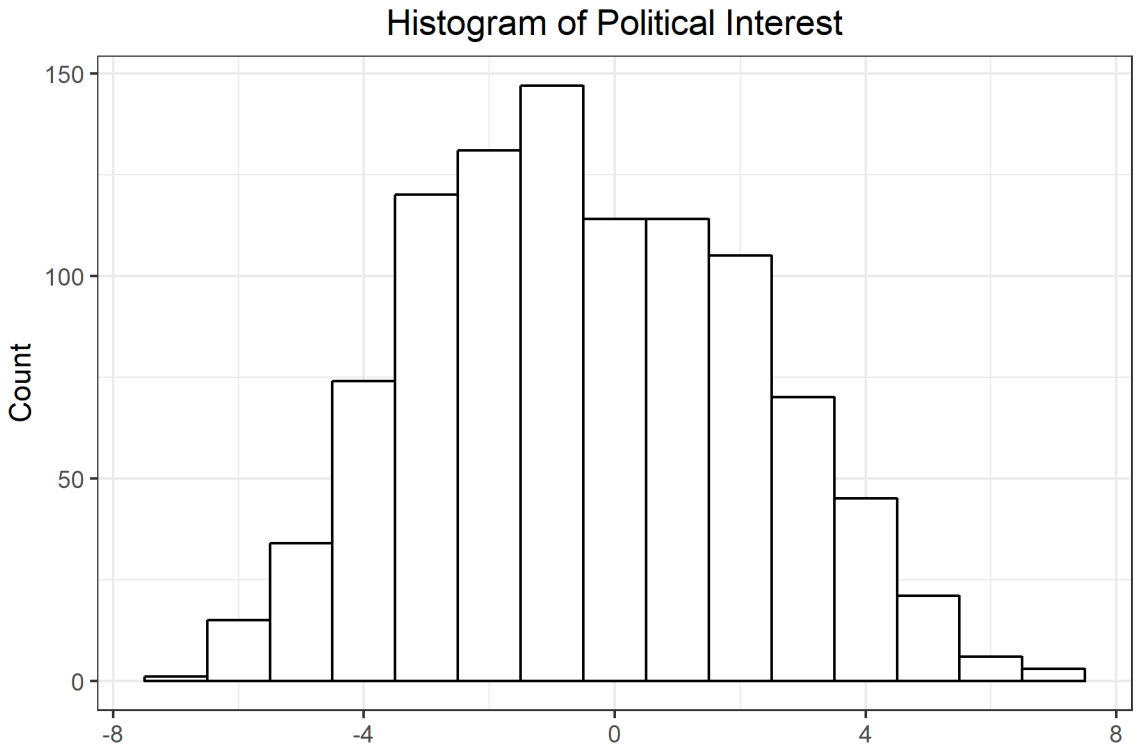


Figure 1: Plotted Distribution of Political Interest

# 3 Independent Variables

There are five independent variables. Variables are *age*, *education*, *income*, *female*, and *treatment*. The distributions of those variables are shown in Figure 2.

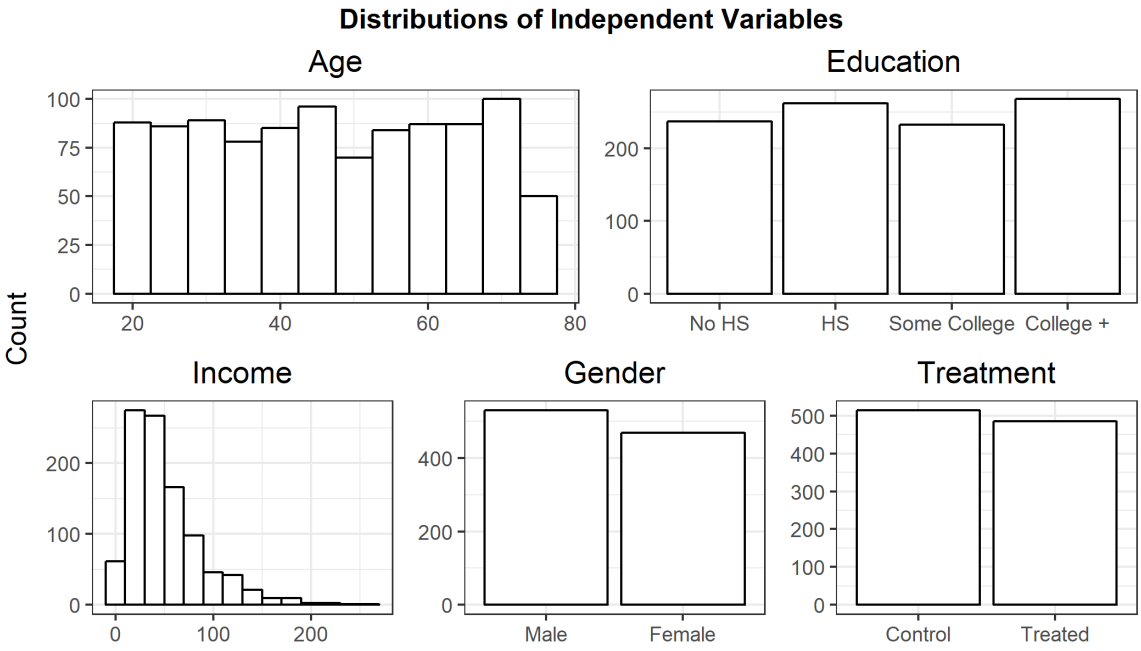


Figure 2: Plotted Distribution of Covariates

# 4 OLS Estimates

Table 1: Multiple Regression Estimates (`apsrtable`)

| | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| (Intercept) | $-9.647^{*}$ (0.247) | $-11.183^{*}$ (0.269) | $-9.316^{*}$ (0.244) |
| Treatment | $0.460^{*}$ (0.083) | $0.461^{*}$ (0.088) | $-0.100$ (0.111) |
| Gender (Female) | $2.483^{*}$ (0.083) | $2.509^{*}$ (0.088) | $1.903^{*}$ (0.113) |
| Age | $0.050^{*}$ (0.002) | $0.050^{*}$ (0.003) | $0.050^{*}$ (0.002) |
| Education (High School) | $1.168^{*}$ (0.118) | | $1.114^{*}$ (0.115) |
| Education (Some College) | $1.613^{*}$ (0.121) | | $1.575^{*}$ (0.118) |
| Education (College/More) | $4.099^{*}$ (0.117) | | $4.020^{*}$ (0.115) |
| Income (Log) | $1.009^{*}$ (0.053) | $1.015^{*}$ (0.056) | $1.014^{*}$ (0.051) |
| Education (4p Scale) | | $1.292^{*}$ (0.039) | |
| Treatment * Female | | | $1.204^{*}$ (0.163) |
| $N$ | 1000 | 1000 | 1000 |
| $R^2$ | 0.751 | 0.722 | 0.764 |
| adj. $R^2$ | 0.749 | 0.720 | 0.762 |
| Resid. sd | 1.311 | 1.383 | 1.277 |

Standard errors in parentheses

$^{*}$ indicates significance at $p < 0.05$

Table 2: Multiple Regression Estimates (`texreg`)

| | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| (Intercept) | $-9.65$ (0.25)$^{***}$ | $-11.18$ (0.27)$^{***}$ | $-9.32$ (0.24)$^{***}$ |
| Treatment | 0.46 (0.08)$^{***}$ | 0.46 (0.09)$^{***}$ | $-0.10$ (0.11) |
| Gender (Female) | 2.48 (0.08)$^{***}$ | 2.51 (0.09)$^{***}$ | 1.90 (0.11)$^{***}$ |
| Treatment * Female | | | 1.20 (0.16)$^{***}$ |
| Age | 0.05 (0.00)$^{***}$ | 0.05 (0.00)$^{***}$ | 0.05 (0.00)$^{***}$ |
| Education (High School) | 1.17 (0.12)$^{***}$ | | 1.11 (0.11)$^{***}$ |
| Education (Some College) | 1.61 (0.12)$^{***}$ | | 1.58 (0.12)$^{***}$ |
| Education (College/More) | 4.10 (0.12)$^{***}$ | | 4.02 (0.11)$^{***}$ |
| Education (4p Scale) | | 1.29 (0.04)$^{***}$ | |
| Income (Log) | 1.01 (0.05)$^{***}$ | 1.02 (0.06)$^{***}$ | 1.01 (0.05)$^{***}$ |
| $R^2$ | 0.75 | 0.72 | 0.76 |
| Adj. $R^2$ | 0.75 | 0.72 | 0.76 |
| Num. obs. | 1000 | 1000 | 1000 |
| RMSE | 1.31 | 1.38 | 1.28 |

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

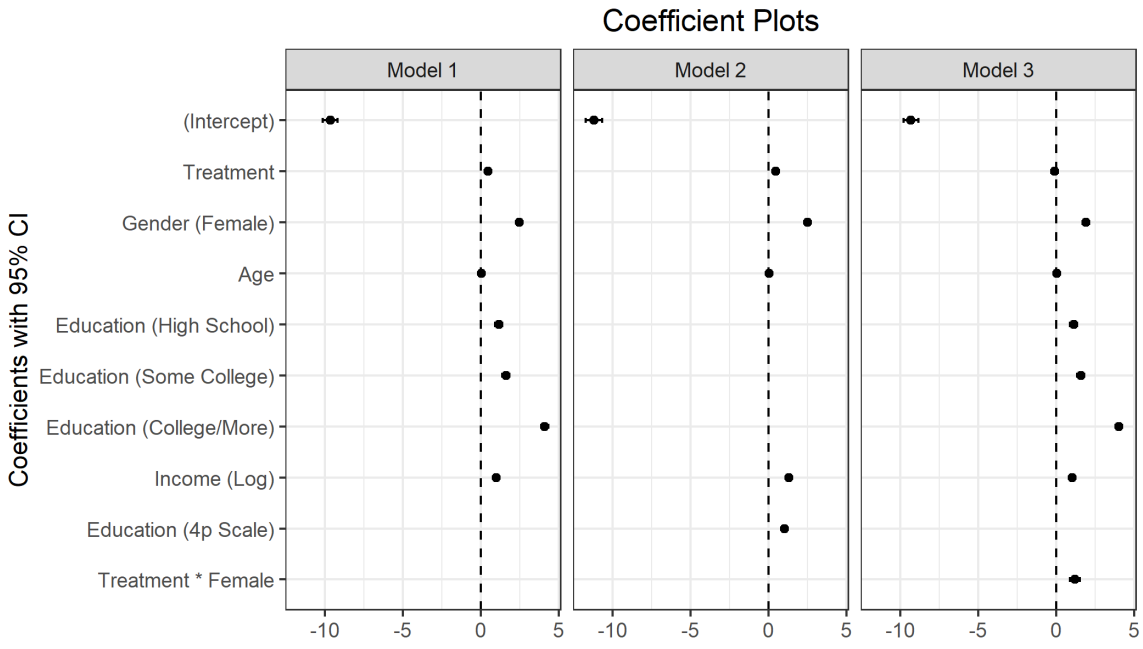


Figure 3: Coefficient Plots

# 5 Interactions

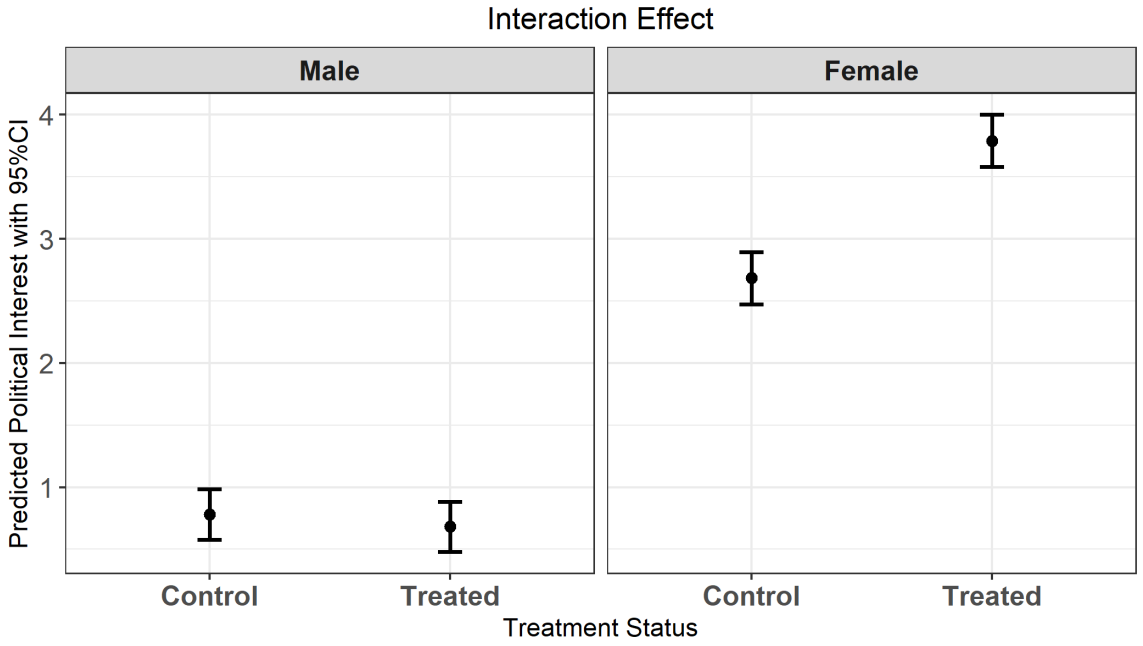


Figure 4: Prediction Plot with Interaction Model

For the interpretation of interacted coefficients, see Friedrich (1982) or Brambor, Clark

and Golder (2006). It is also described in the textbook for this class (Fox 2016).

# References

Brambor, Thomas, William Roberts Clark and Matt Golder. 2006. "Understanding Interaction Models: Improving Empirical Analyses." *Political Analysis* 14(1):63–82.

Fox, John. 2016. *Applied Regression Analysis and Genelarized Linear Models*. 3 ed. Thousand Oaks, CA: Sage Publications.

Friedrich, Robert J. 1982. "In Defense of Multiplicative Terms in Multiple Regression Equations." *American Journal of Political Science* 26(4):797–833.