

CHAPTER 17 Appendix

Logistic Regression with Excel, JMP, Minitab, SPSS, CrunchIt!, R, and a TI-83/-84 Calculator

Logistic regression uses a binary outcome variable. The goal is to model the probability of a “success” using one or more predictors.



Excel

Excel cannot do logistic regression.



The response variable for logistic regression must have modeling type “nominal” or “ordinal.” To assign the roles properly, right-click the column name of the response variable and select “Value Ordering.” The category that indicates a success should come first in this ordering. Click “Reverse” at the bottom right, if needed.

Use Analyze → Fit Y by X.

1. Select the binary variable and click “Y, Response.”
2. Select X variable and click “X, Factor.”
3. Click “OK.”

For more than one predictor, use Analyze → Fit Model.



Minitab

Use Stat → Regression → Binary Logistic Regression → Fit Binary Logistic Model.

1. Click to select and enter the binary response variable into the box labeled “Response.”
2. If necessary, change the value of the response variable that corresponds to a success.
3. Click to select and enter the continuous predictor(s) into the box.
4. If desired, use “Graphs” to define residuals plots and “Model” to refine the predictors (add interaction terms, for example).
5. Click “OK.”



Use Analyze → Regression → Binary Logistic.

1. Click to select and enter the binary dependent variable into its box.
2. Click to enter the predictor(s) into the “Covariates” box.
3. Click “OK.”



Crunchit can only do logistic regression with one predictor. Use Statistics → Regression → Logistic.

1. Use the drop-downs to select the binary response and predictor variables.
2. Use the drop-down to define the binary value that designates a success.
3. Click “Calculate.”



TI calculators cannot do logistic regression.



Use the following commands to calculate and display a logistic regression. Note that additional predictors can be added in the model statement.

```
> model <- glm(Response ~ predictor, family=binomial)
> summary(model)
```