

# Logistic Regression Models

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## ERRATA , ADDITIONS, and COMMENTS

### First Printing

NOTES: words in red font in this document are correct and stay in the text. It is for your reference only to identify where corrections are to be made in text.

There are occasional places where a word may need capitalization, or is capitalized when it should not. Also, I have spotted several places where a word should be italicized. There are only a few of these items. I believe all have been identified and will be corrected in a subsequent printing. Feel free to send identified typos or errors to me in case any have been missed.

### ERRATA

#### CHAPTER 3

Page 52: Equation 3.6, missing = sign.

Equation 3.12, delete  $\theta$  in  $y\theta$ .

Equation 3.17, far left term should read  $\partial\mu/\partial\eta$ , not the inverse.

Page 54: top line should read:

“where  $y$  and  $\mu$  are the response and fitted values respectively,  $x$  is ...”

Page 54: 3<sup>rd</sup> line on page: change to: “**Solving for  $\partial^2L$  – Fisher Scoring**”

Page 56: Equation 3.38, replace  $\Pi$  for  $\Sigma$ .

#### CHAPTER 4

Page 63: The final sentence before Equation 4.1 should read:

“Given these terms, the Bernoulli PDF can be expressed as:”

#### CHAPTER 5

Page 77: Top line on page: Substitute “three” for “two”.

#### CHAPTER 6

Page 193: 3<sup>rd</sup> line from bottom. Coefficient of  $\beta_3$  should be negative; ie  $-1.846994$

Page 216: Delete negation sign of  $-0.16871516$ , 4<sup>th</sup> line of statistical code from bottom of page.

Should read as:

`.000335 + 2*1*(-.03864))`

`.16871516`

[8August2009]

## CHAPTER 7

Page 250: 8<sup>th</sup> line from bottom, substitute “less” for “greater”.

Page 273: Equations 7.33 and 7.34:

7.33 should read:  $d = \sqrt{2\Sigma \ln(1/\mu)}$  if  $y = 1$

7.34 should read:  $d = \sqrt{2\Sigma \ln(1/(1-\mu))}$  if  $y = 0$

## CHAPTER 10

Page 368: Box 10.1: CHANGE to read as: (red text to stay as present)

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Box 10.1

*died*: The expected odds of being admitted to the hospital as an emergency patient compared to an urgent patient, or an urgent patient compared to an elective patient, is some 1.73 times greater among those who died within 48 hours of admission than those who did not die, holding the other predictors constant.

*white*: The expected odds of being admitted to the hospital as an emergency patient compared to an urgent patient, or an urgent patient compared to an elective patient, is some 40 percent less among those who died within 48 hours of admission than those who did not die, holding the other predictors constant.

*hmo*: Patients not belonging to an HMO (Health Maintenance Organization) have roughly half the odds of being admitted to the hospital as an emergency patient compared to an urgent patient, or an urgent patient compared to an elective patient, than are patients having some other insurance of payment plan.

*los*: For each one-unit increase in *los*, there is a 6% increase in the odds of being admitted to the hospital as an emergency patient compared to an urgent patient, or an urgent patient compared to an elective patient.

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## CHAPTER 11

Page 389: The final two lines of the page are to be amended to read:

that the logistic model produces the same coefficients as both the multinomial and proportional odds models, but the intercept of the latter is reversed in many parameterizations.

Page 394: 3<sup>rd</sup> line after “SYNTHETIC MODEL” The line should read:  
arate nonreference level. The code, in `syn_mlogit1.do`, is expressed as:

## APPENDIX A

page 570 (A.1): 2<sup>nd</sup> to last Stata command on page, should read:

```
. gen byte grp = id>2694.5
```

## APPENDIX G

page 587 (A5): the command just above Section A.6 should read:

```
. gen varname = invnorm(runiform())
```

## AMMEND FOR CLARITY PURPOSES

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Page 106: Add 3 sentences following the final sentence now above Section 5.5

To appear as =>

**The same procedure holds for the other predictors.** Note that if the odds ratio confidence interval contains the value of 1.0, the predictor is not significant. Moreover, a value of zero in the coefficient confidence interval indicates a non-significant predictor. Refer to Ch 6.4.5 for additional discussion.

Page 400: final paragraph on page. Add the following to the final line so as to read:  
**be used to model the binary response**, but not as risk ratios.

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## AMMEND OR ADD REFERENCES

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Page 133: to the right of the *genbinomial* command, change to read as:

```
. genbinomial y, xbeta(xb) n(100) /* author: Roberto Gutierrez, unpublished */
```

Page 364: Add sentence to last sentence on page (before *distinct* command):

**test the multivariable model estimated below to determine if robust errors are required.** The *distinct* command below is from Longton and Cox (<http://fmwww.bc.edu/repec/bocode/d/distinct.ado>).

Page 391: Change final sentence of text to read as:

**We use the *prtab* command** (spost9\_ado from <http://www.indiana.edu/~jslsoc/stata>) **to do out work.** (Long, 1997)

Page 397: Third line of text. Long and Freese (2006b) – change from (2006)

Page 412. Section 12.2 The first sentence should read: =>

**The continuation ratio model may be formulated using the following relationship** (1980, S.F. Feinberg):

Page 494, 3 lines from end of text: .. Freese (2006b) – change from .. Freese (2006)

Page 495, 5 lines from end of text: .. Freese (2006b) – change from .. Freese (2006)

Page 601 (right column, item : *prtab*. The author is Long, not Williams). *prtab* in bold.

Page 625: Add as last author on page: Gutierrez, 133, 586

## REFERENCE - additional information

Note: software and related documents for following references can be found at:

Shults, J., S Ratcliffe, M Leonard (2007) ...

(<http://www.cceb.upenn.edu/~sratclif/QLSproject.html>)

Shults, J., W. Sun, X. Tu, J. Amsterdam (2006)...

(<http://biostats.bepress.com/upennbiostat/papers/art8/>).

Note: Nearly all software commands used for examples in the text, and not created by the author, can be found on the web site associated with the book or article as cited and/or referenced. They are posted to the SSC site or are found on the Stata web site for the appropriate STB, Stata Journal, or Stata Press text. Several Stata commands are also posted to the author's personal web site. Appendix G provides a listing of commands used. My apologies for any oversight. I believe there are none. My thanks to all authors.