Lista Exercícios 3b

Resolver os exercícios 4.12 a 4.15 (2ª edição,2007).

4.12 Exercise 2.33 mentioned a study in Florida that stated that the death penalty was given in 19 out of 151 cases in which a white killed a white, in 0 out of 9 cases in which a white killed a black, in 11 out of 63 cases in which a black killed a white, and in 6 out of 103 cases in which a black killed a black. Table 4.11 shows results of fitting a logit model for death penalty as the response (1 = yes), with defendant's race (1 = white) and victims' race (1 = white) as indicator predictors.

a. Based on the parameter estimates, which group is most likely to have the "yes" response? Estimate the probability in that case.

b. Interpret the parameter estimate for victim's race.

c. Using information shown, construct and interpret a 95% likelihood-ratio confidence interval for the conditional odds ratio between the death penalty verdict and victim's race.

d. Test the effect of victim's race, controlling for defendant's race, using a Wald test or likelihood-ratio test. Interpret.

Table 4.11. Computer Output for Problem 4.12 on Death Penalty

Parameter	Estimate	Standard Error	Likelihood Ratio 95% Conf. Limits		Chi-Square
Intercept	−3.5961	0.5069	−4.7754	−2.7349	50.33
def	−0.8678	0.3671	−1.5633	−0.1140	5.59
vic	2.4044	0.6006	1.3068	3.7175	16.03

Source	DF	LR Statistics Chi-Square	Pr > ChiSq
def	1	5.01	0.0251
vic	1	20.35	<.0001

4.13 Refer to (**d**) in the previous exercise. The Cochran–Mantel–Haenszel test statistic for this hypothesis equals 7.00.

a. Report the null sampling distribution of the statistic and the P-value.

b. Under H_0, find the expected count for the cell in which white defendants who had black victims received the death penalty. Based on comparing this to the observed count, interpret the result of the test.

4.14 Refer to the results that Table 4.5 shows for model (4.5) fitted to the data from the AZT and AIDS study in Table 4.4.

a. For black veterans without immediate AZT use, use the prediction equation to estimate the probability of AIDS symptoms.

b. Construct a 95% confidence interval for the conditional odds ratio between AZT use and the development of symptoms.

c. Describe and test for the effect of race in this model.

4.15 Table 4.12 refers to ratings of agricultural extension agents in North Carolina. In each of five districts, agents were classified by their race and by whether they qualified for a merit pay increase.

a. Conduct the Cochran–Mantel–Haenszel test of the hypothesis that the merit pay decision is independent of race, conditional on the district. Interpret.

b. Show how you could alternatively test the hypothesis in (**a**) using a test about a parameter in a logistic regression model.

c. What information can you get from a model-based analysis that you do not get from the *CMH* test?

Table 4.12. Data for Problem 4.15 on Merit Pay and Race

	Blacks, Merit Pay		Whites, Merit Pay	
District	Yes	No	Yes	No
NC	24	9	47	12
NE	10	3	45	8
NW	5	4	57	9
SE	16	7	54	10
SW	7	4	59	12

Source: J. Gastwirth, *Statistical Reasoning in Law and Public Policy*, Vol. 1, 1988, p. 268.

Bom Estudo!!!!