**Chapter 4 Exercises: Solutions**

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| . ologit fechld i.sex educ age kidjob sibsIteration 0: log likelihood = -1494.7622 Iteration 1: log likelihood = -1428.1165 Iteration 2: log likelihood = -1427.3919 Iteration 3: log likelihood = -1427.3912 Iteration 4: log likelihood = -1427.3912 Ordered logistic regression Number of obs = 1251 LR chi2(5) = 134.74 Prob > chi2 = 0.0000Log likelihood = -1427.3912 Pseudo R2 = 0.0451------------------------------------------------------------------------------ fechld | Coef. Std. Err. z P>|z| [95% Conf. Interval]-------------+---------------------------------------------------------------- sex | female | -.745441 .108661 -6.86 0.000 -.9584125 -.5324694 educ | -.1029107 .0180097 -5.71 0.000 -.1382091 -.0676122 age | .0063142 .0030288 2.08 0.037 .0003778 .0122506 kidjob | -.2954451 .0502405 -5.88 0.000 -.3939147 -.1969755 sibs | .0519803 .0173974 2.99 0.003 .017882 .0860787-------------+---------------------------------------------------------------- /cut1 | -3.362494 .3569524 -4.062108 -2.66288 /cut2 | -1.195837 .3445906 -1.871222 -.5204518 /cut3 | .8535894 .3557519 .1563284 1.55085------------------------------------------------------------------------------ |

2. LR chi2(5) = 134.74, *p* < .001, which indicates that the overall model with five predictor variables is significant.

3. Deviance = 2854.782.

4. *R2*L = 0.045, AIC = 2870.782, AIC divided by *N* = 2.295, and BIC = 2911.836.

5. For the sex predictor, logit coefficient = –.745, the Wald *z* = –6.56, *p* < .001, and the 95% CI is [–.958, –.532]; for the educ predictor, logit coefficient = –.103, the Wald *z* = –5.71, *p* < .001, and the 95% CI is [–.138, –.067].

6. OR for sex = .475; OR for educ = .092; OR for sibs = 1.053.

7. For the omnibus Brant test, 210 = 14.51, *p* = .151, which indicates that the proportional odds assumption for the full model is not violated.