**Chapter 7 Exercises: Solutions**

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| . recode fechld (1=4) (2=3) (3=2) (4=1), gen(fechldr)(1292 differences between fechld and fechldr). mlogit fechldr educ kidjob sibs, baseoutcome(1)Iteration 0: log likelihood = -1496.315 Iteration 1: log likelihood = -1449.8946 Iteration 2: log likelihood = -1449.0287 Iteration 3: log likelihood = -1449.0284 Iteration 4: log likelihood = -1449.0284 Multinomial logistic regression Number of obs = 1253 LR chi2(9) = 94.57 Prob > chi2 = 0.0000Log likelihood = -1449.0284 Pseudo R2 = 0.0316------------------------------------------------------------------------------ fechldr | Coef. Std. Err. z P>|z| [95% Conf. Interval]-------------+----------------------------------------------------------------1 | (base outcome)-------------+----------------------------------------------------------------2 | educ | .036626 .0461624 0.79 0.428 -.0538507 .1271026 kidjob | -.0808444 .1285033 -0.63 0.529 -.3327063 .1710174 sibs | .0782665 .0480465 1.63 0.103 -.015903 .172436 \_cons | .9505439 .7664491 1.24 0.215 -.5516687 2.452756-------------+----------------------------------------------------------------3 | educ | .1221729 .0446823 2.73 0.006 .0345972 .2097487 kidjob | .1029414 .1225835 0.84 0.401 -.1373178 .3432006 sibs | .0053936 .0472823 0.11 0.909 -.0872781 .0980653 \_cons | .25854 .7462249 0.35 0.729 -1.204034 1.721114-------------+----------------------------------------------------------------4 | educ | .1885399 .0472078 3.99 0.000 .0960143 .2810655 kidjob | .3919263 .1288612 3.04 0.002 .1393629 .6444896 sibs | -.012815 .0495753 -0.26 0.796 -.1099808 .0843508 \_cons | -2.119619 .8030863 -2.64 0.008 -3.69364 -.5455992------------------------------------------------------------------------------ |

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| . constraint 1 [3]educ=2\*[2]educ. constraint 2 [4]educ=3\*[2]educ. constraint 3 [3]kidjob=2\*[2]kidjob. constraint 4 [4]kidjob=3\*[2]kidjob. constraint 5 [3]sibs=2\*[2]sibs. constraint 6 [4]sibs=3\*[2]sibs. \*Fitting a multiple-predictor model. mlogit fechldr educ kidjob sibs, baseoutcome(1) constraint (1/6)Iteration 0: log likelihood = -1496.315 Iteration 1: log likelihood = -1458.2587 Iteration 2: log likelihood = -1457.3032 Iteration 3: log likelihood = -1457.3008 Iteration 4: log likelihood = -1457.3008 Multinomial logistic regression Number of obs = 1253 Wald chi2(3) = 71.57Log likelihood = -1457.3008 Prob > chi2 = 0.0000 ( 1) - 2\*[2]educ + [3]educ = 0 ( 2) - 3\*[2]educ + [4]educ = 0 ( 3) - 2\*[2]kidjob + [3]kidjob = 0 ( 4) - 3\*[2]kidjob + [4]kidjob = 0 ( 5) - 2\*[2]sibs + [3]sibs = 0 ( 6) - 3\*[2]sibs + [4]sibs = 0------------------------------------------------------------------------------ fechldr | Coef. Std. Err. z P>|z| [95% Conf. Interval]-------------+----------------------------------------------------------------1 | (base outcome)-------------+----------------------------------------------------------------2 | educ | .0687506 .0122406 5.62 0.000 .0447595 .0927417 kidjob | .1849428 .0330838 5.59 0.000 .1200997 .2497858 sibs | -.0289373 .0113703 -2.54 0.011 -.0512228 -.0066519 \_cons | .1978679 .234348 0.84 0.398 -.2614457 .6571814-------------+----------------------------------------------------------------3 | educ | .1375012 .0244812 5.62 0.000 .0895189 .1854834 kidjob | .3698855 .0661676 5.59 0.000 .2401994 .4995716 sibs | -.0578746 .0227407 -2.54 0.011 -.1024455 -.0133037 \_cons | -.4616378 .4150628 -1.11 0.266 -1.275146 .3518703-------------+----------------------------------------------------------------4 | educ | .2062518 .0367218 5.62 0.000 .1342784 .2782251 kidjob | .5548283 .0992514 5.59 0.000 .3602992 .7493575 sibs | -.086812 .034111 -2.54 0.011 -.1536683 -.0199556 \_cons | -2.484251 .6290724 -3.95 0.000 -3.717211 -1.251292------------------------------------------------------------------------------ |

3. Based on the estimated coefficients, the three equations for the model can be expressed as follows:

ln= +educ + .185kidjob – .029sibs

ln= +educ + .370kidjob – .058sibs

ln= +educ + .555kidjob – .087sibs

4. The intercepts for the AC model are .198, –.66, and –2.022, respectively. The logit coefficients for educ, kidjob, and sibs for the AC model are .198, .069, and –.029, respectively.

5. See the output.

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| . listcoef, adjacentmlogit (N=1253): Factor change in the odds of fechldr Variable: educ (sd=3.030)------------------------------------------------------------------------------- | b z P>|z| e^b e^bStdX-----------------------------+-------------------------------------------------1 vs 2 | -0.0688 -5.617 0.000 0.934 0.8122 vs 1 | 0.0688 5.617 0.000 1.071 1.2322 vs 3 | -0.0688 -5.617 0.000 0.934 0.8123 vs 2 | 0.0688 5.617 0.000 1.071 1.2323 vs 4 | -0.0688 -5.617 0.000 0.934 0.8124 vs 3 | 0.0688 5.617 0.000 1.071 1.232-------------------------------------------------------------------------------Variable: kidjob (sd=1.086)------------------------------------------------------------------------------- | b z P>|z| e^b e^bStdX-----------------------------+-------------------------------------------------1 vs 2 | -0.1849 -5.590 0.000 0.831 0.8182 vs 1 | 0.1849 5.590 0.000 1.203 1.2222 vs 3 | -0.1849 -5.590 0.000 0.831 0.8183 vs 2 | 0.1849 5.590 0.000 1.203 1.2223 vs 4 | -0.1849 -5.590 0.000 0.831 0.8184 vs 3 | 0.1849 5.590 0.000 1.203 1.222-------------------------------------------------------------------------------Variable: sibs (sd=3.145)------------------------------------------------------------------------------- | b z P>|z| e^b e^bStdX-----------------------------+-------------------------------------------------1 vs 2 | 0.0289 2.545 0.011 1.029 1.0952 vs 1 | -0.0289 -2.545 0.011 0.971 0.9132 vs 3 | 0.0289 2.545 0.011 1.029 1.0953 vs 2 | -0.0289 -2.545 0.011 0.971 0.9133 vs 4 | 0.0289 2.545 0.011 1.029 1.0954 vs 3 | -0.0289 -2.545 0.011 0.971 0.913------------------------------------------------------------------------------- |