. // Model C.V.3

.

. // poisson model

. glm dv `count\_lag\_4\_vars' `covariates' ib(freq).state ib(freq).time, family(poisson) link(log) vce(cl mineid) exposure(hours) iter(50) eform

Iteration 0: log pseudolikelihood = -22388.614

Iteration 1: log pseudolikelihood = -20020.579

Iteration 2: log pseudolikelihood = -20008.881

Iteration 3: log pseudolikelihood = -20008.875

Iteration 4: log pseudolikelihood = -20008.875

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,134

Scale parameter = 1

Deviance = 20489.76931 (1/df) Deviance = 3.34036

Pearson = 24696.81322 (1/df) Pearson = 4.026217

Variance function: V(u) = u [Poisson]

Link function : g(u) = ln(u) [Log]

AIC = 6.43783

Log pseudolikelihood = -20008.87475 BIC = -33126.4

(Std. Err. adjusted for 1,238 clusters in mineid)

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| Robust

dv | IRR Std. Err. z P>|z| [95% Conf. Interval]

--------------------+----------------------------------------------------------------

sp48\_11\_c\_4lag | 1.005477 .0109291 0.50 0.615 .9842832 1.027128

sp75\_1311\_c\_4lag | .9833229 .0272111 -0.61 0.543 .9314106 1.038129

sp75\_1400\_1\_c\_4lag | 1.005407 .058447 0.09 0.926 .8971379 1.126742

sp75\_1404\_1\_c\_4lag | .9827285 .0223714 -0.77 0.444 .9398452 1.027569

sp75\_1405\_1\_c\_4lag | 1.097719 .024296 4.21 0.000 1.051118 1.146386

sp75\_500\_1\_c\_4lag | .921003 .0527015 -1.44 0.150 .8232916 1.030311

sp75\_501\_c\_4lag | 1.041359 .0230541 1.83 0.067 .9971402 1.087539

sp75\_506\_1\_c\_4lag | 1.014971 .0110765 1.36 0.173 .9934919 1.036914

sp75\_507\_1\_c\_4lag | 1.003603 .0062364 0.58 0.563 .9914545 1.015901

sp75\_508\_1\_c\_4lag | .7936548 .0446869 -4.10 0.000 .7107299 .8862551

sp75\_512\_1\_c\_4lag | 1.031119 .0388831 0.81 0.416 .9576582 1.110216

sp75\_811\_c\_4lag | 1.002238 .01101 0.20 0.839 .9808894 1.024051

sp75\_1002\_c\_4lag | 1.000751 .0038817 0.19 0.847 .9931715 1.008387

sp75\_1003\_2\_c\_4lag | .9889985 .0117097 -0.93 0.350 .9663121 1.012217

sp75\_1322\_c\_4lag | 1.437675 .1432082 3.64 0.000 1.182692 1.747631

sp75\_1719\_2\_c\_4lag | .9839377 .0113655 -1.40 0.161 .961912 1.006468

sp75\_212\_c\_4lag | 1.022715 .0095915 2.39 0.017 1.004088 1.041688

sp75\_332\_c\_4lag | .9799245 .0212249 -0.94 0.349 .9391951 1.02242

sp75\_501\_2\_c\_4lag | .9787586 .0213367 -0.98 0.325 .9378202 1.021484

sp75\_502\_c\_4lag | 1.010141 .0345807 0.29 0.768 .9445876 1.080243

sp75\_602\_c\_4lag | 1.001286 .0063284 0.20 0.839 .9889588 1.013766

sp75\_812\_c\_4lag | 1.031161 .0340959 0.93 0.353 .9664536 1.1002

sp75\_1003\_c\_4lag | .9936518 .0036978 -1.71 0.087 .9864306 1.000926

sp75\_153\_c\_4lag | 1.036057 .0571955 0.64 0.521 .9298077 1.154448

sp75\_203\_c\_4lag | 1.002877 .0026232 1.10 0.272 .9977483 1.008031

sp75\_213\_c\_4lag | 1.081558 .0160919 5.27 0.000 1.050474 1.113562

sp75\_343\_c\_4lag | 1.012598 .0157855 0.80 0.422 .982127 1.044015

sp75\_373\_c\_4lag | .9695761 .0751558 -0.40 0.690 .8329172 1.128657

sp75\_503\_c\_4lag | 1.000502 .0005565 0.90 0.367 .9994123 1.001594

sp75\_523\_c\_4lag | .9897122 .0050049 -2.04 0.041 .9799512 .9995704

sp75\_523\_3\_c\_4lag | .9959638 .0016644 -2.42 0.016 .9927069 .9992314

sp75\_603\_c\_4lag | 1.010614 .0083808 1.27 0.203 .9943203 1.027174

sp75\_703\_3\_c\_4lag | .9981672 .0134749 -0.14 0.892 .9721033 1.02493

sp48\_24\_c\_4lag | 1.039763 .0030658 13.22 0.000 1.033772 1.045789

sp48\_4\_c\_4lag | 1.168115 .1169483 1.55 0.121 .9599879 1.421364

sp75\_1404\_c\_4lag | .9839154 .0408214 -0.39 0.696 .9070736 1.067267

sp75\_1719\_4\_c\_4lag | 1.009008 .005936 1.52 0.127 .9974402 1.020709

sp75\_204\_c\_4lag | 1.001698 .0034429 0.49 0.622 .9949729 1.008469

sp75\_334\_c\_4lag | 1.004169 .0073394 0.57 0.569 .9898866 1.018657

sp75\_524\_c\_4lag | 1.04807 .0436309 1.13 0.259 .965951 1.137171

sp75\_604\_c\_4lag | 1.002088 .0010285 2.03 0.042 1.000074 1.004106

sp75\_703\_4\_c\_4lag | .8509989 .0393718 -3.49 0.000 .777227 .9317731

sp48\_25\_c\_4lag | .9828812 .0148445 -1.14 0.253 .9542129 1.012411

sp48\_5\_c\_4lag | 1.015532 .0253286 0.62 0.537 .9670824 1.066408

sp75\_1315\_c\_4lag | .8050097 .0968398 -1.80 0.071 .6359231 1.019055

sp75\_1403\_5\_c\_4lag | .998188 .0013335 -1.36 0.175 .9955779 1.000805

sp75\_1405\_c\_4lag | .9960334 .002943 -1.35 0.179 .9902819 1.001818

sp75\_155\_c\_4lag | 1.080535 .0756136 1.11 0.268 .9420495 1.23938

sp75\_1725\_c\_4lag | .9992661 .0007022 -1.04 0.296 .9978907 1.000643

sp75\_205\_c\_4lag | 1.079869 .0496894 1.67 0.095 .986742 1.181785

sp75\_215\_c\_4lag | 1.034162 .069805 0.50 0.619 .9060107 1.18044

sp75\_505\_c\_4lag | .9768586 .0352661 -0.65 0.517 .910127 1.048483

sp75\_605\_c\_4lag | .9993818 .0036346 -0.17 0.865 .9922835 1.006531

sp48\_26\_c\_4lag | 1.036534 .0147654 2.52 0.012 1.007995 1.065882

sp48\_6\_c\_4lag | 1.005259 .0126421 0.42 0.677 .9807836 1.030345

sp75\_1316\_c\_4lag | .9248909 .0616452 -1.17 0.241 .8116275 1.05396

sp75\_1403\_6\_c\_4lag | .9994467 .0011278 -0.49 0.624 .9972388 1.001659

sp75\_156\_c\_4lag | .9217414 .0490725 -1.53 0.126 .830409 1.023119

sp75\_1906\_c\_4lag | 1.028735 .0073845 3.95 0.000 1.014363 1.04331

sp75\_1916\_c\_4lag | 1.000123 .0060016 0.02 0.984 .988429 1.011956

sp75\_606\_c\_4lag | .9996654 .0017862 -0.19 0.851 .9961705 1.003172

sp75\_816\_c\_4lag | 1.004867 .0047453 1.03 0.304 .9956091 1.014211

sp75\_906\_c\_4lag | .9220942 .0297399 -2.51 0.012 .8656091 .9822653

sp48\_27\_c\_4lag | .9829389 .0132586 -1.28 0.202 .957293 1.009272

sp48\_7\_c\_4lag | 1.00065 .0086875 0.07 0.940 .9837666 1.017823

sp75\_1403\_7\_c\_4lag | 1.002113 .0072447 0.29 0.770 .988014 1.016413

sp75\_207\_c\_4lag | 1.035013 .0224829 1.58 0.113 .9918721 1.08003

sp75\_327\_c\_4lag | .9606252 .0635759 -0.61 0.544 .8437619 1.093674

sp75\_337\_c\_4lag | .9881642 .0065678 -1.79 0.073 .975375 1.001121

sp75\_507\_c\_4lag | 1.009867 .0085915 1.15 0.248 .9931676 1.026847

sp75\_607\_c\_4lag | .9894333 .007053 -1.49 0.136 .9757057 1.003354

sp75\_807\_c\_4lag | 1.001977 .0018767 1.05 0.292 .9983056 1.005662

sp75\_817\_c\_4lag | .9337995 .0241238 -2.65 0.008 .8876948 .9822987

sp48\_28\_c\_4lag | .9839696 .0190868 -0.83 0.405 .9472623 1.022099

sp48\_8\_c\_4lag | 1.009801 .0163812 0.60 0.548 .9781995 1.042423

sp75\_1318\_c\_4lag | 1.017828 .0339148 0.53 0.596 .9534805 1.086519

sp75\_1403\_8\_c\_4lag | .9972399 .0010747 -2.56 0.010 .9951358 .9993485

sp75\_208\_c\_4lag | 1.000595 .0040273 0.15 0.883 .9927322 1.008519

sp75\_388\_c\_4lag | 1.005687 .0142137 0.40 0.688 .978211 1.033935

sp75\_209\_c\_4lag | .9998844 .0172282 -0.01 0.995 .9666817 1.034228

sp75\_389\_c\_4lag | 1.031359 .0355812 0.90 0.371 .9639271 1.103509

sp75\_509\_c\_4lag | 1.063758 .028186 2.33 0.020 1.009924 1.120461

sp75\_100\_c\_4lag | 1.048185 .0257112 1.92 0.055 .9989837 1.099809

sp75\_1400\_c\_4lag | .9991893 .0085815 -0.09 0.925 .9825107 1.016151

sp75\_1403\_10\_c\_4lag | 1.001166 .0022289 0.52 0.601 .9968066 1.005544

sp75\_160\_c\_4lag | 1.013673 .0510299 0.27 0.787 .9184325 1.118791

sp75\_1720\_c\_4lag | 1.016922 .0082307 2.07 0.038 1.000917 1.033182

sp75\_340\_c\_4lag | .9944737 .0018136 -3.04 0.002 .9909254 .9980347

sp75\_500\_c\_4lag | .9888006 .0129318 -0.86 0.389 .9637768 1.014474

sp75\_510\_c\_4lag | .9683428 .0395143 -0.79 0.430 .8939122 1.048971

sp75\_810\_c\_4lag | 1.023548 .0072564 3.28 0.001 1.009425 1.03787

mine\_time | 1.009996 .0055544 1.81 0.071 .9991677 1.020941

onsite\_insp\_hours | .9998647 .0000314 -4.31 0.000 .9998031 .9999262

|

state |

1 | .9020952 .089705 -1.04 0.300 .7423492 1.096217

2 | 1.473971 .0685819 8.34 0.000 1.3455 1.614709

3 | .5989078 .0593792 -5.17 0.000 .4931362 .7273659

4 | .9971147 .0657218 -0.04 0.965 .8762756 1.134618

5 | .9223799 .0778233 -0.96 0.338 .7817934 1.088247

6 | .8738875 .0429541 -2.74 0.006 .7936272 .9622646

7 | 1.072829 .1702798 0.44 0.658 .7860087 1.464312

8 | .4974459 .0254926 -13.63 0.000 .4499087 .5500059

9 | .620286 .0250144 -11.84 0.000 .5731461 .671303

10 | 1.004834 .0943784 0.05 0.959 .8358833 1.207933

11 | 1.637417 .2767859 2.92 0.004 1.175639 2.280578

12 | 1.017446 .0806991 0.22 0.827 .8709592 1.188569

13 | 1.484993 .1478585 3.97 0.000 1.221719 1.805

14 | .389652 .0582064 -6.31 0.000 .2907528 .5221916

15 | .7760087 .0491239 -4.01 0.000 .6854609 .8785175

17 | .6813027 .029905 -8.74 0.000 .6251405 .7425105

|

time |

2000 | 1.049727 .0459324 1.11 0.267 .9634532 1.143726

2002 | .9437225 .0405139 -1.35 0.177 .8675655 1.026565

2003 | .8362364 .0328325 -4.56 0.000 .7742995 .9031276

2004 | .8141811 .0343374 -4.87 0.000 .7495875 .884341

2005 | .7437434 .0361734 -6.09 0.000 .6761193 .8181312

2006 | .7117322 .0380191 -6.37 0.000 .6409843 .7902889

2007 | .7237853 .0413184 -5.66 0.000 .6471688 .8094722

2008 | .6563694 .0371826 -7.43 0.000 .5873928 .7334458

2009 | .5732316 .0350405 -9.10 0.000 .5085082 .6461932

2010 | .5613468 .0356686 -9.09 0.000 .4956157 .6357956

2011 | .5093526 .0291219 -11.80 0.000 .4553566 .5697514

2012 | .4502216 .0283531 -12.67 0.000 .3979433 .5093678

2013 | .416014 .0309957 -11.77 0.000 .359491 .4814241

2014 | .4466187 .0339329 -10.61 0.000 .3848264 .5183332

2015 | .4046822 .031747 -11.53 0.000 .3470068 .4719436

|

\_cons | .0001004 4.93e-06 -187.40 0.000 .0000912 .0001105

ln(hours) | 1 (exposure)

-------------------------------------------------------------------------------------

.

. quietly poisson dv `count\_lag\_4\_vars' `covariates' ib(freq).state ib(freq).time, vce(cl mineid) exposure(hours) iter(50) irr

. est store pois

. estat gof

Deviance goodness-of-fit = 20489.77

Prob > chi2(6134) = 0.0000

Pearson goodness-of-fit = 24696.81

Prob > chi2(6134) = 0.0000

.

. pause "next"

.

. // negative binomial model

. glm dv `count\_lag\_4\_vars' `covariates' ib(freq).state ib(freq).time, family(nbinomial) link(log) vce(cl mineid) exposure(hours) iter(50) eform

Iteration 0: log pseudolikelihood = -17708.96

Iteration 1: log pseudolikelihood = -17462.706

Iteration 2: log pseudolikelihood = -17457.565

Iteration 3: log pseudolikelihood = -17457.557

Iteration 4: log pseudolikelihood = -17457.557

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,134

Scale parameter = 1

Deviance = 3827.143998 (1/df) Deviance = .6239231

Pearson = 5049.815062 (1/df) Pearson = .8232499

Variance function: V(u) = u+(1)u^2 [Neg. Binomial]

Link function : g(u) = ln(u) [Log]

AIC = 5.6218

Log pseudolikelihood = -17457.55719 BIC = -49789.03

(Std. Err. adjusted for 1,238 clusters in mineid)

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| Robust

dv | IRR Std. Err. z P>|z| [95% Conf. Interval]

--------------------+----------------------------------------------------------------

sp48\_11\_c\_4lag | 1.02236 .0156335 1.45 0.148 .9921731 1.053464

sp75\_1311\_c\_4lag | .954832 .0353925 -1.25 0.212 .8879239 1.026782

sp75\_1400\_1\_c\_4lag | 1.019479 .0636911 0.31 0.757 .9019868 1.152276

sp75\_1404\_1\_c\_4lag | .9678764 .0391867 -0.81 0.420 .8940402 1.04781

sp75\_1405\_1\_c\_4lag | 1.070869 .0365235 2.01 0.045 1.001625 1.144901

sp75\_500\_1\_c\_4lag | .9589774 .0629114 -0.64 0.523 .8432714 1.09056

sp75\_501\_c\_4lag | 1.012432 .0231685 0.54 0.589 .9680254 1.058875

sp75\_506\_1\_c\_4lag | 1.025351 .0160856 1.60 0.111 .9943033 1.057368

sp75\_507\_1\_c\_4lag | 1.000133 .0064931 0.02 0.984 .9874871 1.01294

sp75\_508\_1\_c\_4lag | .7961138 .0754661 -2.41 0.016 .6611304 .958657

sp75\_512\_1\_c\_4lag | 1.005109 .0421812 0.12 0.903 .9257438 1.091277

sp75\_811\_c\_4lag | 1.013587 .0111276 1.23 0.219 .9920105 1.035633

sp75\_1002\_c\_4lag | .9919485 .0068533 -1.17 0.242 .9786067 1.005472

sp75\_1003\_2\_c\_4lag | .9704912 .0146128 -1.99 0.047 .942269 .9995586

sp75\_1322\_c\_4lag | 1.192849 .1320776 1.59 0.111 .9601445 1.481952

sp75\_1719\_2\_c\_4lag | .9879379 .0243984 -0.49 0.623 .9412568 1.036934

sp75\_212\_c\_4lag | 1.023055 .0094081 2.48 0.013 1.004781 1.041661

sp75\_332\_c\_4lag | .9686236 .0225164 -1.37 0.170 .9254825 1.013776

sp75\_501\_2\_c\_4lag | .9671047 .0239392 -1.35 0.177 .9213046 1.015182

sp75\_502\_c\_4lag | 1.046694 .0466683 1.02 0.306 .9591079 1.142277

sp75\_602\_c\_4lag | 1.005356 .0092139 0.58 0.560 .9874587 1.023578

sp75\_812\_c\_4lag | 1.018905 .0406386 0.47 0.639 .9422882 1.101751

sp75\_1003\_c\_4lag | .9904387 .0046209 -2.06 0.039 .9814231 .9995371

sp75\_153\_c\_4lag | .9369839 .0513493 -1.19 0.235 .8415578 1.043231

sp75\_203\_c\_4lag | 1.001815 .0026815 0.68 0.498 .9965727 1.007084

sp75\_213\_c\_4lag | 1.044332 .0272626 1.66 0.097 .9922419 1.099156

sp75\_343\_c\_4lag | 1.005536 .015792 0.35 0.725 .975056 1.036969

sp75\_373\_c\_4lag | .9281798 .1155538 -0.60 0.549 .7272132 1.184684

sp75\_503\_c\_4lag | 1.000354 .0007463 0.47 0.635 .9988923 1.001818

sp75\_523\_c\_4lag | .9833382 .0060039 -2.75 0.006 .971641 .9951762

sp75\_523\_3\_c\_4lag | .9953979 .0020663 -2.22 0.026 .9913562 .9994561

sp75\_603\_c\_4lag | 1.01719 .0133739 1.30 0.195 .9913125 1.043743

sp75\_703\_3\_c\_4lag | 1.001954 .014424 0.14 0.892 .974079 1.030628

sp48\_24\_c\_4lag | 1.032794 .004182 7.97 0.000 1.02463 1.041023

sp48\_4\_c\_4lag | 1.105501 .103021 1.08 0.282 .92095 1.327034

sp75\_1404\_c\_4lag | .9268703 .0802043 -0.88 0.380 .7822803 1.098185

sp75\_1719\_4\_c\_4lag | .9968886 .0059804 -0.52 0.603 .9852359 1.008679

sp75\_204\_c\_4lag | 1.004859 .0038549 1.26 0.206 .9973316 1.012443

sp75\_334\_c\_4lag | 1.004585 .0086931 0.53 0.597 .9876903 1.021768

sp75\_524\_c\_4lag | .9918602 .0510634 -0.16 0.874 .8966614 1.097166

sp75\_604\_c\_4lag | 1.003133 .001244 2.52 0.012 1.000697 1.005574

sp75\_703\_4\_c\_4lag | .8117862 .0545319 -3.10 0.002 .7116428 .926022

sp48\_25\_c\_4lag | .9968462 .0181568 -0.17 0.862 .9618873 1.033076

sp48\_5\_c\_4lag | 1.022874 .0251255 0.92 0.357 .9747957 1.073324

sp75\_1315\_c\_4lag | .6537864 .1001353 -2.77 0.006 .4842439 .8826889

sp75\_1403\_5\_c\_4lag | .9958271 .0018982 -2.19 0.028 .9921137 .9995544

sp75\_1405\_c\_4lag | .9920044 .0045002 -1.77 0.077 .9832233 1.000864

sp75\_155\_c\_4lag | 1.014521 .0772964 0.19 0.850 .8737913 1.177915

sp75\_1725\_c\_4lag | 1.000872 .0009326 0.93 0.350 .9990454 1.002701

sp75\_205\_c\_4lag | 1.092583 .0270361 3.58 0.000 1.040858 1.146879

sp75\_215\_c\_4lag | .9042126 .0769961 -1.18 0.237 .7652238 1.068446

sp75\_505\_c\_4lag | 1.013023 .0344088 0.38 0.703 .9477789 1.082759

sp75\_605\_c\_4lag | .9984512 .0042067 -0.37 0.713 .9902402 1.00673

sp48\_26\_c\_4lag | 1.039465 .0177634 2.26 0.024 1.005226 1.07487

sp48\_6\_c\_4lag | .9956729 .0155612 -0.28 0.781 .9656359 1.026644

sp75\_1316\_c\_4lag | .9185564 .0442883 -1.76 0.078 .8357282 1.009594

sp75\_1403\_6\_c\_4lag | .9998762 .001734 -0.07 0.943 .9964834 1.003281

sp75\_156\_c\_4lag | .8929352 .0509633 -1.98 0.047 .7984331 .9986225

sp75\_1906\_c\_4lag | 1.036182 .0102015 3.61 0.000 1.016379 1.056371

sp75\_1916\_c\_4lag | .9968151 .0092385 -0.34 0.731 .9788715 1.015088

sp75\_606\_c\_4lag | .998023 .0022867 -0.86 0.388 .9935512 1.002515

sp75\_816\_c\_4lag | 1.004595 .0077694 0.59 0.553 .9894818 1.019938

sp75\_906\_c\_4lag | .9237893 .0404669 -1.81 0.070 .8477851 1.006607

sp48\_27\_c\_4lag | .9987021 .0203284 -0.06 0.949 .9596435 1.039351

sp48\_7\_c\_4lag | 1.012401 .0132663 0.94 0.347 .9867305 1.038739

sp75\_1403\_7\_c\_4lag | .9940257 .0083388 -0.71 0.475 .9778155 1.010505

sp75\_207\_c\_4lag | 1.019504 .0223834 0.88 0.379 .9765634 1.064332

sp75\_327\_c\_4lag | .9378671 .0594893 -1.01 0.312 .8282267 1.062022

sp75\_337\_c\_4lag | .988784 .0093236 -1.20 0.232 .970678 1.007228

sp75\_507\_c\_4lag | 1.012952 .0114103 1.14 0.253 .9908336 1.035565

sp75\_607\_c\_4lag | .9917458 .0075567 -1.09 0.277 .9770449 1.006668

sp75\_807\_c\_4lag | 1.005497 .0024058 2.29 0.022 1.000793 1.010223

sp75\_817\_c\_4lag | .9333627 .0547865 -1.17 0.240 .8319298 1.047163

sp48\_28\_c\_4lag | .991216 .0204286 -0.43 0.669 .9519747 1.032075

sp48\_8\_c\_4lag | 1.089056 .0414345 2.24 0.025 1.0108 1.173371

sp75\_1318\_c\_4lag | .9251489 .0893811 -0.81 0.421 .7655521 1.118017

sp75\_1403\_8\_c\_4lag | .9980793 .0015773 -1.22 0.224 .9949926 1.001176

sp75\_208\_c\_4lag | .9972763 .0042328 -0.64 0.520 .9890146 1.005607

sp75\_388\_c\_4lag | 1.016352 .0179435 0.92 0.358 .9817847 1.052136

sp75\_209\_c\_4lag | 1.010815 .0170622 0.64 0.524 .9779206 1.044815

sp75\_389\_c\_4lag | .9783768 .0398874 -0.54 0.592 .9032408 1.059763

sp75\_509\_c\_4lag | 1.067835 .0289692 2.42 0.016 1.012539 1.12615

sp75\_100\_c\_4lag | 1.104262 .0379286 2.89 0.004 1.03237 1.18116

sp75\_1400\_c\_4lag | 1.000245 .0107663 0.02 0.982 .9793642 1.02157

sp75\_1403\_10\_c\_4lag | 1.001252 .0032165 0.39 0.697 .9949671 1.007576

sp75\_160\_c\_4lag | 1.072474 .1114853 0.67 0.501 .8747881 1.314832

sp75\_1720\_c\_4lag | 1.020043 .0099421 2.04 0.042 1.000741 1.039716

sp75\_340\_c\_4lag | .9981036 .0023592 -0.80 0.422 .9934904 1.002738

sp75\_500\_c\_4lag | 1.001424 .0152079 0.09 0.925 .9720566 1.031679

sp75\_510\_c\_4lag | .9929611 .0563462 -0.12 0.901 .8884444 1.109773

sp75\_810\_c\_4lag | 1.008969 .0105258 0.86 0.392 .9885484 1.029812

mine\_time | 1.013283 .0061894 2.16 0.031 1.001224 1.025487

onsite\_insp\_hours | .999836 .0000382 -4.29 0.000 .999761 .999911

|

state |

1 | .8190342 .1163848 -1.40 0.160 .6199351 1.082076

2 | 1.000945 .0516766 0.02 0.985 .9046163 1.107531

3 | .6498424 .0841068 -3.33 0.001 .5042432 .8374831

4 | .968266 .0710126 -0.44 0.660 .8386245 1.117948

5 | .7942998 .0650898 -2.81 0.005 .6764439 .9326896

6 | .7535598 .0362543 -5.88 0.000 .6857501 .8280748

7 | 1.052813 .231796 0.23 0.815 .6838233 1.62091

8 | .4568351 .0271604 -13.18 0.000 .4065862 .5132941

9 | .5318484 .0267066 -12.57 0.000 .4819977 .5868549

10 | .8545021 .0986047 -1.36 0.173 .6815368 1.071364

11 | 1.498222 .2648207 2.29 0.022 1.059548 2.118516

12 | .9969072 .075848 -0.04 0.968 .858801 1.157223

13 | 1.53436 .1759979 3.73 0.000 1.225436 1.921162

14 | .4083047 .0721891 -5.07 0.000 .2887288 .5774024

15 | .7144673 .0403472 -5.95 0.000 .6396075 .7980888

17 | .6221126 .0354503 -8.33 0.000 .5563709 .6956225

|

time |

2000 | 1.053524 .0598776 0.92 0.359 .9424667 1.177668

2002 | .9106185 .054744 -1.56 0.119 .8094024 1.024492

2003 | .855976 .0597615 -2.23 0.026 .7465062 .9814989

2004 | .7779269 .0481612 -4.06 0.000 .6890348 .8782868

2005 | .6942116 .0430164 -5.89 0.000 .6148196 .7838556

2006 | .6779811 .0433705 -6.08 0.000 .5980895 .7685444

2007 | .6519688 .0447095 -6.24 0.000 .5699735 .7457598

2008 | .5835424 .0426306 -7.37 0.000 .5056942 .6733747

2009 | .5331577 .0393106 -8.53 0.000 .4614187 .6160503

2010 | .5276096 .0374414 -9.01 0.000 .4591005 .6063419

2011 | .4981057 .0357318 -9.72 0.000 .4327732 .573301

2012 | .4424466 .0360403 -10.01 0.000 .3771592 .5190354

2013 | .4357333 .0375681 -9.64 0.000 .3679863 .5159526

2014 | .4201415 .0356409 -10.22 0.000 .3557849 .4961394

2015 | .3864317 .0330686 -11.11 0.000 .3267623 .4569973

|

\_cons | .0001116 7.45e-06 -136.27 0.000 .0000979 .0001272

ln(hours) | 1 (exposure)

-------------------------------------------------------------------------------------

.

. pause "next"

.

. eststo clear

. eststo: nbreg dv `count\_lag\_4\_vars' `covariates' ib(freq).state ib(freq).time, vce(cl mineid) exposure(hours) iter(50) irr

Fitting Poisson model:

Iteration 0: log pseudolikelihood = -219108.11

Iteration 1: log pseudolikelihood = -131911.02

Iteration 2: log pseudolikelihood = -43154.421

Iteration 3: log pseudolikelihood = -21309.871

Iteration 4: log pseudolikelihood = -20106.261

Iteration 5: log pseudolikelihood = -20010.12

Iteration 6: log pseudolikelihood = -20008.876

Iteration 7: log pseudolikelihood = -20008.875

Fitting constant-only model:

Iteration 0: log pseudolikelihood = -17884.199

Iteration 1: log pseudolikelihood = -17442.363

Iteration 2: log pseudolikelihood = -17390.126

Iteration 3: log pseudolikelihood = -17389.648

Iteration 4: log pseudolikelihood = -17389.648

Fitting full model:

Iteration 0: log pseudolikelihood = -16780.124

Iteration 1: log pseudolikelihood = -16626.389

Iteration 2: log pseudolikelihood = -16612.117

Iteration 3: log pseudolikelihood = -16612.059

Iteration 4: log pseudolikelihood = -16612.059

Negative binomial regression Number of obs = 6,253

Wald chi2(118) = .

Dispersion = mean Prob > chi2 = .

Log pseudolikelihood = -16612.059 Pseudo R2 = 0.0447

(Std. Err. adjusted for 1,238 clusters in mineid)

-------------------------------------------------------------------------------------

| Robust

dv | IRR Std. Err. z P>|z| [95% Conf. Interval]

--------------------+----------------------------------------------------------------

sp48\_11\_c\_4lag | 1.015727 .0123401 1.28 0.199 .9918263 1.040203

sp75\_1311\_c\_4lag | .9636927 .0314731 -1.13 0.257 .9039395 1.027396

sp75\_1400\_1\_c\_4lag | 1.016557 .061481 0.27 0.786 .9029241 1.14449

sp75\_1404\_1\_c\_4lag | .9678323 .0329613 -0.96 0.337 .9053383 1.03464

sp75\_1405\_1\_c\_4lag | 1.074801 .0300658 2.58 0.010 1.017459 1.135374

sp75\_500\_1\_c\_4lag | .9478945 .063976 -0.79 0.428 .8304435 1.081957

sp75\_501\_c\_4lag | 1.022928 .0221561 1.05 0.295 .9804112 1.067288

sp75\_506\_1\_c\_4lag | 1.020371 .0146427 1.41 0.160 .9920713 1.049477

sp75\_507\_1\_c\_4lag | 1.003309 .0064104 0.52 0.605 .9908227 1.015952

sp75\_508\_1\_c\_4lag | .7867886 .0634815 -2.97 0.003 .6717064 .9215877

sp75\_512\_1\_c\_4lag | 1.010505 .0396926 0.27 0.790 .9356278 1.091374

sp75\_811\_c\_4lag | 1.010138 .0102264 1.00 0.319 .9902921 1.030382

sp75\_1002\_c\_4lag | .9937924 .005427 -1.14 0.254 .9832124 1.004486

sp75\_1003\_2\_c\_4lag | .9753491 .0131569 -1.85 0.064 .9498999 1.00148

sp75\_1322\_c\_4lag | 1.249894 .1268615 2.20 0.028 1.02442 1.524994

sp75\_1719\_2\_c\_4lag | .9878752 .0211412 -0.57 0.569 .9472962 1.030192

sp75\_212\_c\_4lag | 1.021704 .0091101 2.41 0.016 1.004004 1.039716

sp75\_332\_c\_4lag | .9758728 .0207134 -1.15 0.250 .9361082 1.017327

sp75\_501\_2\_c\_4lag | .9663709 .0227995 -1.45 0.147 .9227021 1.012107

sp75\_502\_c\_4lag | 1.029801 .037607 0.80 0.421 .9586684 1.106211

sp75\_602\_c\_4lag | 1.002241 .0078827 0.28 0.776 .9869095 1.01781

sp75\_812\_c\_4lag | 1.023452 .0394439 0.60 0.548 .9489916 1.103756

sp75\_1003\_c\_4lag | .9913452 .0043528 -1.98 0.048 .9828505 .9999134

sp75\_153\_c\_4lag | .9534335 .0507244 -0.90 0.370 .8590233 1.05822

sp75\_203\_c\_4lag | 1.002221 .0025509 0.87 0.383 .9972338 1.007233

sp75\_213\_c\_4lag | 1.057611 .0223078 2.66 0.008 1.01478 1.10225

sp75\_343\_c\_4lag | 1.009582 .0153689 0.63 0.531 .9799043 1.040158

sp75\_373\_c\_4lag | .9414293 .0995198 -0.57 0.568 .7652547 1.158162

sp75\_503\_c\_4lag | 1.000502 .00069 0.73 0.467 .9991506 1.001855

sp75\_523\_c\_4lag | .9845869 .005395 -2.83 0.005 .9740694 .9952179

sp75\_523\_3\_c\_4lag | .9958474 .0018694 -2.22 0.027 .9921902 .999518

sp75\_603\_c\_4lag | 1.017246 .0118542 1.47 0.142 .9942758 1.040748

sp75\_703\_3\_c\_4lag | 1.003289 .0131611 0.25 0.802 .9778221 1.029418

sp48\_24\_c\_4lag | 1.036082 .0035524 10.34 0.000 1.029143 1.043068

sp48\_4\_c\_4lag | 1.124677 .1044895 1.26 0.206 .9374447 1.349303

sp75\_1404\_c\_4lag | .9504575 .0648572 -0.74 0.456 .8314737 1.086468

sp75\_1719\_4\_c\_4lag | 1.000985 .0057021 0.17 0.863 .9898709 1.012223

sp75\_204\_c\_4lag | 1.004771 .0036058 1.33 0.185 .9977287 1.011863

sp75\_334\_c\_4lag | 1.003444 .0076924 0.45 0.654 .9884802 1.018635

sp75\_524\_c\_4lag | 1.009418 .0477845 0.20 0.843 .9199758 1.107556

sp75\_604\_c\_4lag | 1.00296 .001139 2.60 0.009 1.00073 1.005195

sp75\_703\_4\_c\_4lag | .8249321 .0421241 -3.77 0.000 .7463675 .9117666

sp48\_25\_c\_4lag | .9962227 .0167155 -0.23 0.822 .9639938 1.029529

sp48\_5\_c\_4lag | 1.021565 .0239815 0.91 0.363 .9756266 1.069666

sp75\_1315\_c\_4lag | .7169297 .0932447 -2.56 0.011 .5556078 .9250919

sp75\_1403\_5\_c\_4lag | .9962802 .0016384 -2.27 0.023 .9930741 .9994966

sp75\_1405\_c\_4lag | .9929703 .0041185 -1.70 0.089 .9849309 1.001075

sp75\_155\_c\_4lag | 1.025242 .0750172 0.34 0.733 .8882676 1.183339

sp75\_1725\_c\_4lag | 1.000463 .0008217 0.56 0.573 .9988535 1.002075

sp75\_205\_c\_4lag | 1.09251 .0268659 3.60 0.000 1.041102 1.146455

sp75\_215\_c\_4lag | .9489329 .068109 -0.73 0.465 .8244059 1.09227

sp75\_505\_c\_4lag | 1.011942 .0319253 0.38 0.707 .9512645 1.076489

sp75\_605\_c\_4lag | .998194 .0038655 -0.47 0.641 .9906465 1.005799

sp48\_26\_c\_4lag | 1.040619 .0160477 2.58 0.010 1.009637 1.072552

sp48\_6\_c\_4lag | .9995253 .0145462 -0.03 0.974 .9714181 1.028446

sp75\_1316\_c\_4lag | .9335748 .0419572 -1.53 0.126 .854858 1.01954

sp75\_1403\_6\_c\_4lag | .9998479 .0015644 -0.10 0.923 .9967864 1.002919

sp75\_156\_c\_4lag | .8888939 .0478374 -2.19 0.029 .7999099 .9877768

sp75\_1906\_c\_4lag | 1.036074 .0096311 3.81 0.000 1.017368 1.055124

sp75\_1916\_c\_4lag | .9983322 .0087222 -0.19 0.848 .9813826 1.015575

sp75\_606\_c\_4lag | .9985799 .0021606 -0.66 0.511 .9943541 1.002824

sp75\_816\_c\_4lag | 1.004358 .0069555 0.63 0.530 .9908177 1.018084

sp75\_906\_c\_4lag | .9185158 .0375241 -2.08 0.037 .8478373 .9950864

sp48\_27\_c\_4lag | .9977716 .0185251 -0.12 0.904 .9621157 1.034749

sp48\_7\_c\_4lag | 1.009129 .0121457 0.76 0.450 .9856028 1.033218

sp75\_1403\_7\_c\_4lag | .9951079 .0078132 -0.62 0.532 .9799116 1.01054

sp75\_207\_c\_4lag | 1.025595 .021247 1.22 0.222 .9847854 1.068095

sp75\_327\_c\_4lag | .947763 .061393 -0.83 0.408 .8347601 1.076063

sp75\_337\_c\_4lag | .9878603 .008438 -1.43 0.153 .9714598 1.004538

sp75\_507\_c\_4lag | 1.012533 .0105547 1.19 0.232 .992056 1.033432

sp75\_607\_c\_4lag | .9918542 .0070451 -1.15 0.250 .9781417 1.005759

sp75\_807\_c\_4lag | 1.004676 .0022478 2.09 0.037 1.00028 1.009091

sp75\_817\_c\_4lag | .9410656 .0496401 -1.15 0.250 .8486332 1.043566

sp48\_28\_c\_4lag | .9874516 .0213182 -0.58 0.559 .9465403 1.030131

sp48\_8\_c\_4lag | 1.057269 .0317746 1.85 0.064 .9967907 1.121417

sp75\_1318\_c\_4lag | .9605564 .0678338 -0.57 0.569 .8363953 1.103149

sp75\_1403\_8\_c\_4lag | .9978264 .0014137 -1.54 0.125 .9950595 1.000601

sp75\_208\_c\_4lag | .9996841 .0038721 -0.08 0.935 .9921238 1.007302

sp75\_388\_c\_4lag | 1.012033 .0158942 0.76 0.446 .9813552 1.043669

sp75\_209\_c\_4lag | 1.009771 .0157466 0.62 0.533 .979375 1.04111

sp75\_389\_c\_4lag | .9946129 .0384202 -0.14 0.889 .9220907 1.072839

sp75\_509\_c\_4lag | 1.064556 .0275158 2.42 0.016 1.01197 1.119876

sp75\_100\_c\_4lag | 1.091261 .0355175 2.68 0.007 1.023822 1.163142

sp75\_1400\_c\_4lag | 1.001001 .0099521 0.10 0.920 .9816837 1.020698

sp75\_1403\_10\_c\_4lag | 1.000661 .0028481 0.23 0.816 .9950941 1.006258

sp75\_160\_c\_4lag | 1.068095 .102646 0.69 0.493 .884724 1.289472

sp75\_1720\_c\_4lag | 1.017866 .0090441 1.99 0.046 1.000293 1.035747

sp75\_340\_c\_4lag | .9967378 .0021255 -1.53 0.125 .9925807 1.000912

sp75\_500\_c\_4lag | 1.000516 .014081 0.04 0.971 .9732945 1.028498

sp75\_510\_c\_4lag | .9862893 .0504076 -0.27 0.787 .8922794 1.090204

sp75\_810\_c\_4lag | 1.012887 .0089817 1.44 0.149 .9954349 1.030644

mine\_time | 1.010969 .0055903 1.97 0.049 1.000071 1.021985

onsite\_insp\_hours | .9998427 .0000359 -4.39 0.000 .9997724 .999913

|

state |

1 | .8458275 .1062667 -1.33 0.183 .6612108 1.081991

2 | 1.135145 .0550838 2.61 0.009 1.032158 1.248408

3 | .6367289 .0815555 -3.52 0.000 .4953683 .8184288

4 | .9597521 .0644862 -0.61 0.541 .8413302 1.094843

5 | .8046935 .0633935 -2.76 0.006 .6895617 .9390482

6 | .7694886 .0342163 -5.89 0.000 .7052651 .8395604

7 | 1.034022 .2101389 0.16 0.869 .6942959 1.53998

8 | .470153 .0286006 -12.41 0.000 .4173097 .5296878

9 | .5636076 .0262539 -12.31 0.000 .51443 .6174863

10 | .8917023 .089778 -1.14 0.255 .7320144 1.086226

11 | 1.528385 .2538199 2.55 0.011 1.103756 2.116374

12 | 1.062337 .0721349 0.89 0.373 .929959 1.213558

13 | 1.497177 .1554159 3.89 0.000 1.221556 1.834987

14 | .402424 .0707492 -5.18 0.000 .2851256 .567978

15 | .7372008 .0387456 -5.80 0.000 .6650412 .81719

17 | .6463027 .0331465 -8.51 0.000 .5844951 .714646

|

time |

2000 | 1.074951 .0483629 1.61 0.108 .9842207 1.174046

2002 | .9344549 .0456976 -1.39 0.166 .8490477 1.028453

2003 | .8514808 .0447969 -3.06 0.002 .7680556 .9439675

2004 | .8019984 .0389046 -4.55 0.000 .7292595 .8819926

2005 | .721295 .0363754 -6.48 0.000 .6534107 .796232

2006 | .7030729 .0364337 -6.80 0.000 .6351709 .7782339

2007 | .6902669 .0393904 -6.50 0.000 .617224 .7719537

2008 | .607424 .0361841 -8.37 0.000 .5404881 .6826494

2009 | .5435943 .0327904 -10.11 0.000 .48298 .6118158

2010 | .540281 .0326904 -10.18 0.000 .4798623 .6083069

2011 | .505431 .0302185 -11.41 0.000 .4495424 .568268

2012 | .4422009 .0294969 -12.23 0.000 .3880078 .5039631

2013 | .4236684 .0299482 -12.15 0.000 .3688557 .4866264

2014 | .4254934 .0310302 -11.72 0.000 .3688219 .4908728

2015 | .3985173 .029679 -12.35 0.000 .3443937 .4611468

|

\_cons | .0001074 5.64e-06 -174.13 0.000 .0000969 .000119

ln(hours) | 1 (exposure)

--------------------+----------------------------------------------------------------

/lnalpha | -1.264106 .0581419 -1.378062 -1.15015

--------------------+----------------------------------------------------------------

alpha | .2824918 .0164246 .2520666 .3165893

-------------------------------------------------------------------------------------

(est1 stored)

. esttab using `"`directory'Model.`injury\_label'.`time\_label'.`violation\_level\_label'.C.V.3.csv"', replace plain wide p eform

(note: file C:\Users\jbodson\Dropbox (Stanford Law School)\R-code\Injury-Classification\PS Model Summaries 10-10\Estout\Model.PS.Y.SP.C.V.3.csv not found)

(output written to C:\Users\jbodson\Dropbox (Stanford Law School)\R-code\Injury-Classification\PS Model Summaries 10-10\Estout\Model.PS.Y.SP.C.V.3.csv)

. est store nbin

.

. pause "next"

.

. // test for over-dispersion

. lrtest pois nbin, stats force

Likelihood-ratio test LR chi2(1) = 6793.63

(Assumption: pois nested in nbin) Prob > chi2 = 0.0000

Akaike's information criterion and Bayesian information criterion

-----------------------------------------------------------------------------

Model | Obs ll(null) ll(model) df AIC BIC

-------------+---------------------------------------------------------------

pois | 6,253 -24975.69 -20008.87 119 40255.75 41057.91

nbin | 6,253 -17389.65 -16612.06 120 33464.12 34273.02

-----------------------------------------------------------------------------

Note: N=Obs used in calculating BIC; see [R] BIC note.

.

. pause "next"

.

. // final model + diagnostics/assessment

. quietly nbreg dv `count\_lag\_4\_vars' `covariates' ib(freq).state ib(freq).time, vce(cl mineid) exposure(hours) iter(50) irr

. predict cv3\_yhat

(option n assumed; predicted number of events)

. gen cv3\_res = dv - cv3\_yhat

.

. summ dv cv3\_yhat

Variable | Obs Mean Std. Dev. Min Max

-------------+---------------------------------------------------------

dv | 6,253 9.976651 14.85334 0 200

cv3\_yhat | 6,253 10.3991 15.01699 .0033079 226.0941

.

. pause "next"

. /\*

> scatter dv cv3\_yhat

>

> pause "next"

>

> scatter cv3\_res dv

>

> pause "next"

>

> scatter cv3\_res cv3\_yhat

> \*/

. pause "complete: C.V.3"

.