. // Model C.SSV.1

.

. // poisson model

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

note: sp75\_1322\_ss omitted because of collinearity

note: sp75\_373\_ss omitted because of collinearity

Iteration 0: log pseudolikelihood = -22661.762

Iteration 1: log pseudolikelihood = -20271.744

Iteration 2: log pseudolikelihood = -20260.906

Iteration 3: log pseudolikelihood = -20260.9

Iteration 4: log pseudolikelihood = -20260.9

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,144

Scale parameter = 1

Deviance = 20993.82073 (1/df) Deviance = 3.416963

Pearson = 25496.42983 (1/df) Pearson = 4.14981

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

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

AIC = 6.515241

Log pseudolikelihood = -20260.90047 BIC = -32709.76

(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\_ss | 1.031897 .0459213 0.71 0.480 .9457065 1.125943

sp48\_25\_ss | .9441609 .043339 -1.25 0.211 .862927 1.033042

sp48\_26\_ss | 1.106615 .0793213 1.41 0.158 .9615751 1.273533

sp48\_27\_ss | .9831976 .0566803 -0.29 0.769 .8781526 1.100808

sp48\_28\_ss | .9285097 .0425139 -1.62 0.105 .8488135 1.015689

sp48\_4\_ss | .7695642 .2620852 -0.77 0.442 .3947817 1.500143

sp48\_5\_ss | 1.172572 .1175761 1.59 0.112 .9633588 1.427221

sp48\_6\_ss | 1.023786 .0525477 0.46 0.647 .9258057 1.132136

sp48\_7\_ss | 1.053971 .036976 1.50 0.134 .9839349 1.128992

sp48\_8\_ss | 1.045 .0979948 0.47 0.639 .8695507 1.25585

sp75\_100\_ss | 1.12579 .1619437 0.82 0.410 .8492058 1.492457

sp75\_1002\_ss | .981535 .0284379 -0.64 0.520 .9273508 1.038885

sp75\_1003\_ss | .9457986 .0269835 -1.95 0.051 .8943635 1.000192

sp75\_1003\_2\_ss | .9040877 .0680591 -1.34 0.180 .7800684 1.047824

sp75\_1311\_ss | .9151578 .1132941 -0.72 0.474 .7179918 1.166467

sp75\_1315\_ss | 1.147564 .3753493 0.42 0.674 .6044535 2.178667

sp75\_1316\_ss | .9352981 .1285521 -0.49 0.626 .7144249 1.224457

sp75\_1318\_ss | 1.268839 .1183694 2.55 0.011 1.056813 1.523402

sp75\_1322\_ss | 1 (omitted)

sp75\_1400\_ss | 1.094365 .0355931 2.77 0.006 1.026781 1.166398

sp75\_1400\_1\_ss | .8445692 .1320045 -1.08 0.280 .621719 1.147298

sp75\_1403\_10\_ss | 1.034104 .0094577 3.67 0.000 1.015732 1.052807

sp75\_1403\_5\_ss | .9829209 .007745 -2.19 0.029 .9678575 .9982187

sp75\_1403\_6\_ss | .9914895 .0080527 -1.05 0.293 .9758314 1.007399

sp75\_1403\_7\_ss | 1.006595 .0293071 0.23 0.821 .9507626 1.065707

sp75\_1403\_8\_ss | .9775091 .0102414 -2.17 0.030 .957641 .9977894

sp75\_1404\_ss | 1.13803 .2235885 0.66 0.510 .7743166 1.672589

sp75\_1404\_1\_ss | .877143 .084449 -1.36 0.173 .7263049 1.059307

sp75\_1405\_ss | .9758838 .0105747 -2.25 0.024 .9553764 .9968314

sp75\_1405\_1\_ss | 1.316477 .189342 1.91 0.056 .9930917 1.745168

sp75\_153\_ss | 1.444982 .1963359 2.71 0.007 1.107149 1.885901

sp75\_155\_ss | .8857856 .1158098 -0.93 0.354 .6855521 1.144503

sp75\_156\_ss | 1.030878 .1824994 0.17 0.864 .7286456 1.458471

sp75\_1719\_2\_ss | .8050278 .1813475 -0.96 0.336 .5176806 1.251872

sp75\_1719\_4\_ss | 1.031685 .0740588 0.43 0.664 .8962809 1.187545

sp75\_1720\_ss | 1.061413 .0294605 2.15 0.032 1.005214 1.120753

sp75\_1725\_ss | .9972463 .0031304 -0.88 0.380 .9911296 1.003401

sp75\_1906\_ss | 1.116049 .1693244 0.72 0.469 .8289739 1.502538

sp75\_1916\_ss | 1.120811 .0686038 1.86 0.062 .9941028 1.26367

sp75\_203\_ss | 1.014173 .0151202 0.94 0.345 .9849664 1.044245

sp75\_204\_ss | 1.050504 .0240519 2.15 0.031 1.004405 1.098718

sp75\_205\_ss | 1.454476 .3067318 1.78 0.076 .9620516 2.198948

sp75\_207\_ss | 1.187205 .1694213 1.20 0.229 .8975412 1.570353

sp75\_208\_ss | 1.024269 .0152012 1.62 0.106 .9949041 1.0545

sp75\_209\_ss | 1.100769 .069592 1.52 0.129 .9724832 1.245978

sp75\_212\_ss | 1.105061 .0475964 2.32 0.020 1.015603 1.202399

sp75\_213\_ss | 1.080475 .02044 4.09 0.000 1.041147 1.121289

sp75\_215\_ss | 1.331061 .3836345 0.99 0.321 .7566012 2.341686

sp75\_332\_ss | .9198195 .0813045 -0.95 0.344 .7735055 1.09381

sp75\_334\_ss | .9735024 .0336315 -0.78 0.437 .9097679 1.041702

sp75\_337\_ss | .9732134 .0216788 -1.22 0.223 .9316379 1.016644

sp75\_340\_ss | .9994578 .011121 -0.05 0.961 .9778969 1.021494

sp75\_343\_ss | 1.100955 .1047822 1.01 0.312 .9136029 1.326728

sp75\_373\_ss | 1 (omitted)

sp75\_388\_ss | 1.073396 .0632104 1.20 0.229 .9563877 1.204718

sp75\_389\_ss | .9110003 .1771944 -0.48 0.632 .6222362 1.333772

sp75\_500\_ss | .9671006 .0590273 -0.55 0.584 .8580613 1.089996

sp75\_500\_1\_ss | .7861964 .1484232 -1.27 0.203 .5430449 1.13822

sp75\_501\_ss | 1.024864 .1023106 0.25 0.806 .8427374 1.246351

sp75\_501\_2\_ss | .775122 .2422769 -0.81 0.415 .4200618 1.430299

sp75\_502\_ss | 1.288004 .3295987 0.99 0.323 .7800023 2.126859

sp75\_503\_ss | 1.004912 .0037695 1.31 0.191 .9975508 1.012327

sp75\_505\_ss | .5646378 .2160076 -1.49 0.135 .2667686 1.195103

sp75\_506\_1\_ss | 1.245894 .1419552 1.93 0.054 .9965443 1.557635

sp75\_507\_ss | 1.050853 .0536261 0.97 0.331 .9508334 1.161394

sp75\_507\_1\_ss | 1.007563 .0305161 0.25 0.804 .9494935 1.069185

sp75\_509\_ss | 1.239904 .1163793 2.29 0.022 1.031556 1.490332

sp75\_512\_1\_ss | 1.566281 .1053324 6.67 0.000 1.372861 1.786953

sp75\_523\_ss | .9445286 .0211388 -2.55 0.011 .9039928 .9868821

sp75\_523\_3\_ss | .9808606 .0086061 -2.20 0.028 .9641371 .9978741

sp75\_524\_ss | 1.202608 .1856847 1.19 0.232 .8885812 1.627613

sp75\_602\_ss | 1.020763 .040835 0.51 0.607 .9437854 1.10402

sp75\_603\_ss | 1.070837 .0391569 1.87 0.061 .9967769 1.150401

sp75\_604\_ss | 1.006939 .0039373 1.77 0.077 .999252 1.014686

sp75\_605\_ss | .9925765 .0226669 -0.33 0.744 .9491296 1.038012

sp75\_606\_ss | 1.006721 .0159387 0.42 0.672 .9759615 1.03845

sp75\_607\_ss | 1.013445 .0434712 0.31 0.756 .9317265 1.102331

sp75\_703\_3\_ss | 1.039485 .0588653 0.68 0.494 .9302835 1.161505

sp75\_807\_ss | 1.023406 .0178601 1.33 0.185 .9889932 1.059017

sp75\_810\_ss | 1.12438 .0805088 1.64 0.102 .9771579 1.293784

sp75\_811\_ss | .7826839 .0713652 -2.69 0.007 .6545966 .9358345

sp75\_812\_ss | .8173103 .0927416 -1.78 0.075 .6543342 1.020879

sp75\_816\_ss | 1.111845 .065021 1.81 0.070 .9914381 1.246874

sp75\_817\_ss | .8426139 .2942423 -0.49 0.624 .4249986 1.670589

sp75\_906\_ss | .4145157 .056415 -6.47 0.000 .3174635 .541238

mine\_time | 1.010244 .0058548 1.76 0.079 .9988334 1.021784

onsite\_insp\_hours | .9998562 .0000337 -4.27 0.000 .9997902 .9999222

|

state |

1 | .8787635 .0717564 -1.58 0.113 .7488007 1.031283

2 | 1.509722 .0760602 8.18 0.000 1.367771 1.666406

3 | .6186991 .0617325 -4.81 0.000 .5088015 .7523338

4 | 1.098802 .0563132 1.84 0.066 .9937928 1.214908

5 | .9785977 .0938694 -0.23 0.822 .810877 1.18101

6 | .8857769 .0441946 -2.43 0.015 .8032576 .9767735

7 | 1.076242 .1752084 0.45 0.652 .7822348 1.480752

8 | .4768527 .0171322 -20.61 0.000 .4444292 .5116416

9 | .6149104 .023275 -12.85 0.000 .5709434 .6622632

10 | 1.032919 .1126799 0.30 0.767 .8340837 1.279154

11 | 1.633179 .2798498 2.86 0.004 1.167288 2.285017

12 | .9784388 .0835833 -0.26 0.799 .8275984 1.156772

13 | 1.506729 .1479015 4.18 0.000 1.243027 1.826373

14 | .3913424 .0575239 -6.38 0.000 .2933849 .5220067

15 | .766362 .0540742 -3.77 0.000 .6673805 .8800239

17 | .6645287 .0328887 -8.26 0.000 .6030958 .7322193

|

time |

2000 | 1.059539 .0390473 1.57 0.117 .9857062 1.138902

2002 | .9867107 .0378838 -0.35 0.728 .9151848 1.063827

2003 | .8312288 .0351366 -4.37 0.000 .765138 .9030283

2004 | .8326167 .0360654 -4.23 0.000 .7648472 .906391

2005 | .7760181 .0343968 -5.72 0.000 .711447 .8464497

2006 | .7421706 .0374183 -5.91 0.000 .6723392 .8192549

2007 | .7338124 .0397297 -5.72 0.000 .6599328 .8159627

2008 | .6741107 .0386695 -6.87 0.000 .6024251 .7543265

2009 | .5984616 .0340848 -9.01 0.000 .5352502 .6691379

2010 | .5787765 .0356743 -8.87 0.000 .5129146 .6530956

2011 | .5210375 .0306162 -11.09 0.000 .4643573 .5846362

2012 | .4607257 .029302 -12.18 0.000 .40673 .5218895

2013 | .4448547 .0337549 -10.68 0.000 .3833808 .5161857

2014 | .4623358 .0359706 -9.92 0.000 .396947 .5384962

2015 | .4319648 .0346632 -10.46 0.000 .3690994 .5055375

|

\_cons | .0000973 4.71e-06 -190.68 0.000 .0000885 .000107

ln(hours) | 1 (exposure)

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

.

. quietly poisson dv `count\_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 = 20390.47

Prob > chi2(6134) = 0.0000

Pearson goodness-of-fit = 24697.86

Prob > chi2(6134) = 0.0000

.

. pause "next"

.

. // negative binomial model

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

note: sp75\_1322\_ss omitted because of collinearity

note: sp75\_373\_ss omitted because of collinearity

Iteration 0: log pseudolikelihood = -17710.102

Iteration 1: log pseudolikelihood = -17471.448

Iteration 2: log pseudolikelihood = -17465.93

Iteration 3: log pseudolikelihood = -17465.919

Iteration 4: log pseudolikelihood = -17465.919

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,144

Scale parameter = 1

Deviance = 3843.867193 (1/df) Deviance = .6256294

Pearson = 5107.506927 (1/df) Pearson = .8313

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

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

AIC = 5.621276

Log pseudolikelihood = -17465.91879 BIC = -49859.71

(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\_ss | 1.033079 .0582156 0.58 0.564 .9250535 1.153719

sp48\_25\_ss | .9741646 .0602555 -0.42 0.672 .8629438 1.09972

sp48\_26\_ss | 1.099269 .0788784 1.32 0.187 .9550489 1.265267

sp48\_27\_ss | .934609 .0653169 -0.97 0.333 .814971 1.07181

sp48\_28\_ss | .9919204 .0775932 -0.10 0.917 .8509253 1.156278

sp48\_4\_ss | .6478131 .1794612 -1.57 0.117 .3763957 1.114949

sp48\_5\_ss | 1.221802 .2014472 1.22 0.224 .8844173 1.687892

sp48\_6\_ss | .9691962 .0870308 -0.35 0.728 .8127865 1.155705

sp48\_7\_ss | 1.077994 .0556728 1.45 0.146 .9742182 1.192824

sp48\_8\_ss | 1.294147 .2224603 1.50 0.134 .9239838 1.812603

sp75\_100\_ss | 1.481881 .2714787 2.15 0.032 1.034843 2.122034

sp75\_1002\_ss | .9878502 .0774941 -0.16 0.876 .847065 1.152034

sp75\_1003\_ss | .9112518 .0392042 -2.16 0.031 .8375634 .9914234

sp75\_1003\_2\_ss | .874344 .0595815 -1.97 0.049 .7650289 .9992791

sp75\_1311\_ss | .8250001 .1070617 -1.48 0.138 .6397233 1.063937

sp75\_1315\_ss | .8081606 .3128288 -0.55 0.582 .3784498 1.725786

sp75\_1316\_ss | .7233303 .1723364 -1.36 0.174 .4534552 1.153822

sp75\_1318\_ss | 1.182064 .092346 2.14 0.032 1.014244 1.37765

sp75\_1322\_ss | 1 (omitted)

sp75\_1400\_ss | 1.263174 .1496074 1.97 0.049 1.001495 1.593226

sp75\_1400\_1\_ss | .7532278 .1484703 -1.44 0.151 .5118518 1.108431

sp75\_1403\_10\_ss | 1.035916 .0170315 2.15 0.032 1.003067 1.069841

sp75\_1403\_5\_ss | .9803165 .0151338 -1.29 0.198 .951099 1.010432

sp75\_1403\_6\_ss | .9891466 .0098423 -1.10 0.273 .9700428 1.008627

sp75\_1403\_7\_ss | .9918684 .0323778 -0.25 0.802 .9303964 1.057402

sp75\_1403\_8\_ss | .9709055 .0100695 -2.85 0.004 .9513689 .9908434

sp75\_1404\_ss | 1.434906 .4331876 1.20 0.232 .7940575 2.592955

sp75\_1404\_1\_ss | .7378742 .0973789 -2.30 0.021 .5697014 .9556906

sp75\_1405\_ss | .9609459 .012052 -3.18 0.001 .9376123 .9848601

sp75\_1405\_1\_ss | 1.414654 .3071702 1.60 0.110 .9243257 2.165088

sp75\_153\_ss | 1.298384 .1856689 1.83 0.068 .9810281 1.718403

sp75\_155\_ss | .8851707 .1350147 -0.80 0.424 .6564379 1.193605

sp75\_156\_ss | 1.060871 .2109222 0.30 0.766 .7184998 1.566384

sp75\_1719\_2\_ss | .5078069 .3230915 -1.07 0.287 .1459226 1.767154

sp75\_1719\_4\_ss | .9522174 .0869099 -0.54 0.592 .7962438 1.138744

sp75\_1720\_ss | 1.075885 .0333128 2.36 0.018 1.012534 1.143198

sp75\_1725\_ss | 1.005266 .0041356 1.28 0.202 .9971928 1.013404

sp75\_1906\_ss | 1.131093 .1542027 0.90 0.366 .8658717 1.477554

sp75\_1916\_ss | 1.09329 .0753438 1.29 0.196 .9551572 1.251398

sp75\_203\_ss | 1.010776 .0142076 0.76 0.446 .9833102 1.03901

sp75\_204\_ss | 1.070935 .0254021 2.89 0.004 1.022288 1.121898

sp75\_205\_ss | 1.570171 .3223516 2.20 0.028 1.05002 2.34799

sp75\_207\_ss | 1.146868 .1100999 1.43 0.153 .950162 1.384297

sp75\_208\_ss | 1.011823 .0165914 0.72 0.473 .9798216 1.04487

sp75\_209\_ss | 1.090881 .0592575 1.60 0.109 .9807072 1.213431

sp75\_212\_ss | 1.102723 .0537455 2.01 0.045 1.002259 1.213258

sp75\_213\_ss | 1.108557 .1859327 0.61 0.539 .7979767 1.540018

sp75\_215\_ss | 1.191128 .3409889 0.61 0.541 .6796446 2.087542

sp75\_332\_ss | .843462 .0798944 -1.80 0.072 .7005482 1.015531

sp75\_334\_ss | .9827454 .0419612 -0.41 0.684 .9038503 1.068527

sp75\_337\_ss | .9679736 .0265644 -1.19 0.236 .9172838 1.021465

sp75\_340\_ss | 1.010092 .0156082 0.65 0.516 .9799596 1.041152

sp75\_343\_ss | 1.019867 .0923206 0.22 0.828 .8540648 1.217857

sp75\_373\_ss | 1 (omitted)

sp75\_388\_ss | 1.088441 .0712721 1.29 0.196 .9573427 1.237492

sp75\_389\_ss | .8397569 .2216988 -0.66 0.508 .5005337 1.408879

sp75\_500\_ss | 1.060132 .1121409 0.55 0.581 .8616282 1.304369

sp75\_500\_1\_ss | .7092273 .1864871 -1.31 0.191 .4236109 1.187418

sp75\_501\_ss | .8956898 .1315523 -0.75 0.453 .6716445 1.194472

sp75\_501\_2\_ss | .6933472 .2148375 -1.18 0.237 .3777472 1.272625

sp75\_502\_ss | 1.52996 .4594423 1.42 0.157 .849311 2.756089

sp75\_503\_ss | 1.012957 .0052298 2.49 0.013 1.002758 1.023259

sp75\_505\_ss | .8725914 .2294551 -0.52 0.604 .5211713 1.46097

sp75\_506\_1\_ss | 1.190102 .1922504 1.08 0.281 .8671214 1.633383

sp75\_507\_ss | 1.066092 .0693939 0.98 0.326 .9384005 1.211158

sp75\_507\_1\_ss | .9913129 .0394681 -0.22 0.827 .9168979 1.071767

sp75\_509\_ss | 1.209014 .0919423 2.50 0.013 1.041597 1.40334

sp75\_512\_1\_ss | 1.155047 .2074503 0.80 0.422 .8123084 1.642398

sp75\_523\_ss | .8988268 .0196266 -4.88 0.000 .8611708 .9381293

sp75\_523\_3\_ss | .9859928 .0114769 -1.21 0.226 .9637531 1.008746

sp75\_524\_ss | .9258993 .1747883 -0.41 0.683 .6395532 1.340451

sp75\_602\_ss | .9878416 .0529173 -0.23 0.819 .8893847 1.097198

sp75\_603\_ss | 1.12833 .0778431 1.75 0.080 .9856255 1.291695

sp75\_604\_ss | 1.011604 .0051028 2.29 0.022 1.001652 1.021655

sp75\_605\_ss | 1.003667 .0254755 0.14 0.885 .9549574 1.054861

sp75\_606\_ss | 1.000658 .0156569 0.04 0.966 .9704371 1.031821

sp75\_607\_ss | 1.043221 .0451165 0.98 0.328 .9584382 1.135504

sp75\_703\_3\_ss | .9912544 .062031 -0.14 0.888 .876836 1.120603

sp75\_807\_ss | 1.019094 .0195573 0.99 0.324 .981474 1.058155

sp75\_810\_ss | 1.032592 .0783726 0.42 0.673 .8898638 1.198213

sp75\_811\_ss | .7462197 .0857311 -2.55 0.011 .5957644 .9346712

sp75\_812\_ss | .842653 .1089077 -1.32 0.185 .6540881 1.085579

sp75\_816\_ss | 1.06127 .0873684 0.72 0.470 .9031323 1.247098

sp75\_817\_ss | 1.504541 .8769616 0.70 0.483 .4800192 4.715735

sp75\_906\_ss | .4163009 .0757202 -4.82 0.000 .2914633 .594608

mine\_time | 1.013345 .0061262 2.19 0.028 1.001409 1.025424

onsite\_insp\_hours | .9998252 .0000382 -4.58 0.000 .9997504 .9999

|

state |

1 | .7970964 .0959886 -1.88 0.060 .6295159 1.009288

2 | 1.0277 .0522413 0.54 0.591 .9302443 1.135365

3 | .6676936 .0832946 -3.24 0.001 .5228655 .8526374

4 | 1.007909 .0640399 0.12 0.901 .8898937 1.141575

5 | .8168896 .0686441 -2.41 0.016 .6928449 .9631429

6 | .7405038 .0359509 -6.19 0.000 .6732899 .8144277

7 | 1.043146 .2306122 0.19 0.848 .6763431 1.608879

8 | .4754198 .0188725 -18.73 0.000 .4398328 .5138862

9 | .5366449 .0252138 -13.25 0.000 .4894338 .58841

10 | .8660394 .1090046 -1.14 0.253 .6767069 1.108344

11 | 1.433288 .2766276 1.87 0.062 .9818606 2.092267

12 | .9757632 .0725779 -0.33 0.742 .8433959 1.128905

13 | 1.554361 .1766743 3.88 0.000 1.243945 1.942238

14 | .4014366 .0719627 -5.09 0.000 .2825063 .5704347

15 | .6958957 .0393306 -6.41 0.000 .6229252 .777414

17 | .5921749 .0281927 -11.01 0.000 .539418 .6500916

|

time |

2000 | 1.033639 .0576171 0.59 0.553 .9266617 1.152966

2002 | .9338897 .0551334 -1.16 0.247 .8318476 1.048449

2003 | .8634676 .0613593 -2.07 0.039 .7512048 .9925073

2004 | .7789341 .0478068 -4.07 0.000 .6906507 .8785024

2005 | .7001702 .0425411 -5.87 0.000 .6215645 .7887168

2006 | .6848737 .0442463 -5.86 0.000 .6034184 .7773246

2007 | .6558115 .0442339 -6.25 0.000 .5746008 .7484999

2008 | .5919596 .0420437 -7.38 0.000 .5150339 .6803749

2009 | .548971 .0393878 -8.36 0.000 .4769546 .6318612

2010 | .5361439 .038161 -8.76 0.000 .4663323 .6164064

2011 | .5040736 .0356457 -9.69 0.000 .4388348 .5790111

2012 | .4537804 .0363671 -9.86 0.000 .3878184 .5309615

2013 | .4543205 .0385207 -9.31 0.000 .3847611 .5364554

2014 | .4296424 .0354801 -10.23 0.000 .3654386 .505126

2015 | .3997536 .0340257 -10.77 0.000 .3383303 .4723282

|

\_cons | .000112 7.40e-06 -137.73 0.000 .0000984 .0001275

ln(hours) | 1 (exposure)

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

.

. pause "next"

.

. eststo clear

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

note: sp75\_1322\_ss omitted because of collinearity

note: sp75\_373\_ss omitted because of collinearity

Fitting Poisson model:

Iteration 0: log pseudolikelihood = -74046.594

Iteration 1: log pseudolikelihood = -37647.569

Iteration 2: log pseudolikelihood = -21885.652

Iteration 3: log pseudolikelihood = -20351.821

Iteration 4: log pseudolikelihood = -20261.612

Iteration 5: log pseudolikelihood = -20260.901

Iteration 6: log pseudolikelihood = -20260.9

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 = -16799.739

Iteration 1: log pseudolikelihood = -16652.167

Iteration 2: log pseudolikelihood = -16638.447

Iteration 3: log pseudolikelihood = -16638.394

Iteration 4: log pseudolikelihood = -16638.394

Negative binomial regression Number of obs = 6,253

Wald chi2(108) = .

Dispersion = mean Prob > chi2 = .

Log pseudolikelihood = -16638.394 Pseudo R2 = 0.0432

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

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

| Robust

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

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

sp48\_11\_ss | 1.036165 .0525836 0.70 0.484 .9380629 1.144527

sp48\_25\_ss | .9549249 .0506026 -0.87 0.384 .8607223 1.059438

sp48\_26\_ss | 1.116551 .0784215 1.57 0.116 .9729583 1.281337

sp48\_27\_ss | .9512399 .0627441 -0.76 0.449 .8358811 1.082519

sp48\_28\_ss | .950699 .0636132 -0.76 0.450 .8338491 1.083924

sp48\_4\_ss | .6660172 .1980015 -1.37 0.172 .3719034 1.192726

sp48\_5\_ss | 1.175647 .150559 1.26 0.206 .9146777 1.511075

sp48\_6\_ss | .9908066 .0791802 -0.12 0.908 .8471595 1.158811

sp48\_7\_ss | 1.070643 .0501261 1.46 0.145 .9767705 1.173537

sp48\_8\_ss | 1.225522 .2105597 1.18 0.237 .8751336 1.716201

sp75\_100\_ss | 1.382246 .2219999 2.02 0.044 1.008963 1.89363

sp75\_1002\_ss | .9656652 .0469941 -0.72 0.473 .8778147 1.062308

sp75\_1003\_ss | .9141486 .0369475 -2.22 0.026 .8445268 .9895099

sp75\_1003\_2\_ss | .8916594 .0635609 -1.61 0.108 .7753934 1.025359

sp75\_1311\_ss | .8399393 .0949928 -1.54 0.123 .6729479 1.048369

sp75\_1315\_ss | .9285652 .3182822 -0.22 0.829 .4742943 1.817929

sp75\_1316\_ss | .7910388 .1626002 -1.14 0.254 .5287264 1.18349

sp75\_1318\_ss | 1.12712 .0799642 1.69 0.092 .980802 1.295267

sp75\_1322\_ss | 1 (omitted)

sp75\_1400\_ss | 1.170827 .0741872 2.49 0.013 1.034089 1.325646

sp75\_1400\_1\_ss | .7893633 .159995 -1.17 0.243 .5305766 1.174372

sp75\_1403\_10\_ss | 1.033858 .0154077 2.23 0.025 1.004097 1.064502

sp75\_1403\_5\_ss | .9804107 .0135878 -1.43 0.153 .9541375 1.007407

sp75\_1403\_6\_ss | .9899945 .0091717 -1.09 0.278 .9721806 1.008135

sp75\_1403\_7\_ss | 1.000237 .0310901 0.01 0.994 .9411206 1.063067

sp75\_1403\_8\_ss | .9721758 .0096411 -2.85 0.004 .953462 .991257

sp75\_1404\_ss | 1.386032 .3984638 1.14 0.256 .7889788 2.4349

sp75\_1404\_1\_ss | .7866687 .093325 -2.02 0.043 .6234636 .9925963

sp75\_1405\_ss | .9645359 .011432 -3.05 0.002 .9423878 .9872046

sp75\_1405\_1\_ss | 1.391129 .2783754 1.65 0.099 .9398003 2.059203

sp75\_153\_ss | 1.333189 .1785052 2.15 0.032 1.025466 1.733253

sp75\_155\_ss | .8995565 .1213862 -0.78 0.433 .6905057 1.171898

sp75\_156\_ss | 1.044294 .198456 0.23 0.820 .7195512 1.515597

sp75\_1719\_2\_ss | .5752808 .2881306 -1.10 0.270 .2155529 1.535345

sp75\_1719\_4\_ss | .9576776 .084644 -0.49 0.625 .8053528 1.138813

sp75\_1720\_ss | 1.078422 .0312522 2.61 0.009 1.018875 1.141448

sp75\_1725\_ss | 1.003279 .0037369 0.88 0.379 .9959818 1.01063

sp75\_1906\_ss | 1.121816 .1536978 0.84 0.401 .85763 1.467381

sp75\_1916\_ss | 1.096063 .0742198 1.35 0.176 .9598353 1.251626

sp75\_203\_ss | 1.01071 .0137104 0.79 0.432 .9841921 1.037942

sp75\_204\_ss | 1.071372 .0237494 3.11 0.002 1.025821 1.118946

sp75\_205\_ss | 1.599619 .3347728 2.24 0.025 1.06139 2.410785

sp75\_207\_ss | 1.162052 .1099352 1.59 0.112 .9653802 1.398792

sp75\_208\_ss | 1.018744 .0148155 1.28 0.202 .9901158 1.048199

sp75\_209\_ss | 1.090973 .0564735 1.68 0.093 .9857168 1.207469

sp75\_212\_ss | 1.103508 .0500151 2.17 0.030 1.009708 1.206022

sp75\_213\_ss | 1.07522 .0899351 0.87 0.386 .9126406 1.266761

sp75\_215\_ss | 1.27609 .3521142 0.88 0.377 .7430318 2.191569

sp75\_332\_ss | .8926119 .0789806 -1.28 0.199 .7504923 1.061645

sp75\_334\_ss | .9883322 .0400168 -0.29 0.772 .9129322 1.06996

sp75\_337\_ss | .9741176 .0237268 -1.08 0.282 .9287064 1.021749

sp75\_340\_ss | 1.002405 .0128841 0.19 0.852 .9774676 1.027978

sp75\_343\_ss | 1.046868 .0903207 0.53 0.596 .8840007 1.239741

sp75\_373\_ss | 1 (omitted)

sp75\_388\_ss | 1.074717 .0641294 1.21 0.227 .9560971 1.208053

sp75\_389\_ss | .895428 .2138288 -0.46 0.644 .5607421 1.429875

sp75\_500\_ss | 1.039516 .1040512 0.39 0.699 .8543373 1.264832

sp75\_500\_1\_ss | .7317069 .1880481 -1.22 0.224 .4421595 1.210864

sp75\_501\_ss | .9433103 .1161681 -0.47 0.636 .7410194 1.200824

sp75\_501\_2\_ss | .7200146 .2131052 -1.11 0.267 .4030958 1.286099

sp75\_502\_ss | 1.414687 .3744113 1.31 0.190 .8421342 2.37651

sp75\_503\_ss | 1.011662 .004992 2.35 0.019 1.001925 1.021494

sp75\_505\_ss | .8212028 .2152003 -0.75 0.452 .4913476 1.372499

sp75\_506\_1\_ss | 1.186351 .1835834 1.10 0.269 .8759773 1.606695

sp75\_507\_ss | 1.062376 .062209 1.03 0.301 .9471851 1.191576

sp75\_507\_1\_ss | .9975143 .0382825 -0.06 0.948 .9252345 1.075441

sp75\_509\_ss | 1.219013 .0923585 2.61 0.009 1.050793 1.414163

sp75\_512\_1\_ss | 1.292093 .1617161 2.05 0.041 1.011018 1.65131

sp75\_523\_ss | .912167 .0185537 -4.52 0.000 .8765176 .9492662

sp75\_523\_3\_ss | .9852127 .0098886 -1.48 0.138 .9660209 1.004786

sp75\_524\_ss | .9910048 .176071 -0.05 0.959 .6995898 1.403809

sp75\_602\_ss | .9935744 .0478602 -0.13 0.894 .904062 1.09195

sp75\_603\_ss | 1.110076 .0631533 1.84 0.066 .9929497 1.241019

sp75\_604\_ss | 1.011514 .0047686 2.43 0.015 1.002211 1.020904

sp75\_605\_ss | 1.003134 .0238135 0.13 0.895 .95753 1.050911

sp75\_606\_ss | 1.002668 .0150033 0.18 0.859 .9736888 1.032509

sp75\_607\_ss | 1.035127 .0438589 0.81 0.415 .9526376 1.124759

sp75\_703\_3\_ss | .9987926 .0557089 -0.02 0.983 .8953617 1.114172

sp75\_807\_ss | 1.019486 .0180405 1.09 0.275 .984733 1.055465

sp75\_810\_ss | 1.062195 .0743468 0.86 0.389 .9260308 1.21838

sp75\_811\_ss | .7623913 .0794355 -2.60 0.009 .6215687 .9351188

sp75\_812\_ss | .8541294 .1032554 -1.30 0.192 .6739416 1.082493

sp75\_816\_ss | 1.07602 .0773318 1.02 0.308 .9346434 1.238782

sp75\_817\_ss | 1.427481 .8685035 0.58 0.559 .4331965 4.703874

sp75\_906\_ss | .4335429 .0645465 -5.61 0.000 .3238203 .5804438

mine\_time | 1.010938 .0055879 1.97 0.049 1.000045 1.021949

onsite\_insp\_hours | .9998398 .000037 -4.33 0.000 .9997673 .9999124

|

state |

1 | .8191698 .0872589 -1.87 0.061 .6648182 1.009357

2 | 1.162022 .0574587 3.04 0.002 1.05469 1.280277

3 | .6544411 .0804332 -3.45 0.001 .5143453 .8326959

4 | 1.01615 .0577004 0.28 0.778 .9091247 1.135774

5 | .8400648 .0695379 -2.11 0.035 .7142546 .9880354

6 | .7607951 .0340951 -6.10 0.000 .6968206 .830643

7 | 1.032016 .2109514 0.15 0.877 .6913448 1.540558

8 | .4741822 .0178623 -19.81 0.000 .4404339 .5105166

9 | .5673238 .0241285 -13.33 0.000 .5219502 .6166418

10 | .9070212 .1017102 -0.87 0.384 .7280592 1.129973

11 | 1.481643 .2731283 2.13 0.033 1.032362 2.126451

12 | 1.036584 .0705581 0.53 0.598 .9071206 1.184525

13 | 1.522925 .1587413 4.04 0.000 1.241521 1.868113

14 | .3962977 .0699267 -5.25 0.000 .2804317 .560036

15 | .7210018 .0380772 -6.19 0.000 .6501045 .7996309

17 | .6092448 .0304874 -9.90 0.000 .5523273 .6720276

|

time |

2000 | 1.048168 .0459198 1.07 0.283 .9619223 1.142146

2002 | .9591929 .0464917 -0.86 0.390 .8722654 1.054784

2003 | .8535338 .0450271 -3.00 0.003 .7696914 .9465091

2004 | .8030854 .0392704 -4.48 0.000 .7296902 .883863

2005 | .7286451 .0362933 -6.36 0.000 .6608735 .8033666

2006 | .7129028 .0373386 -6.46 0.000 .6433515 .7899732

2007 | .6901944 .0387913 -6.60 0.000 .6182027 .7705697

2008 | .6137486 .0359302 -8.34 0.000 .5472167 .6883697

2009 | .5584897 .0331977 -9.80 0.000 .4970705 .6274979

2010 | .5508424 .0337558 -9.73 0.000 .488501 .6211396

2011 | .510895 .0308366 -11.13 0.000 .4538944 .5750537

2012 | .4532306 .030227 -11.87 0.000 .3976954 .5165209

2013 | .4417533 .0312611 -11.55 0.000 .3845419 .5074766

2014 | .434918 .0316269 -11.45 0.000 .3771452 .5015406

2015 | .4134073 .0314155 -11.62 0.000 .3562 .4798025

|

\_cons | .0001076 5.72e-06 -171.82 0.000 .0000969 .0001194

ln(hours) | 1 (exposure)

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

/lnalpha | -1.23983 .0575365 -1.3526 -1.127061

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

alpha | .2894334 .016653 .2585672 .3239842

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

(est1 stored)

. esttab using `"`directory'Model.`injury\_label'.`time\_label'.`violation\_level\_label'.C.SSV.1.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.SSV.1.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.SSV.1.csv)

. est store nbin

.

. pause "next"

.

. // test for over-dispersion

. lrtest pois nbin, stats force

Likelihood-ratio test LR chi2(9) = -6641.67

(Assumption: nbin nested in pois) Prob > chi2 = 1.0000

Akaike's information criterion and Bayesian information criterion

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

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

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

nbin | 6,253 -17389.65 -16638.39 110 33496.79 34238.28

pois | 6,253 -24975.69 -19959.23 119 40156.45 40958.61

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

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

.

. pause "next"

.

. // final model + diagnostics/assessment

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

. predict cssv1\_yhat

(option n assumed; predicted number of events)

. gen cssv1\_res = dv - cssv1\_yhat

.

. summ dv cssv1\_yhat

Variable | Obs Mean Std. Dev. Min Max

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

dv | 6,253 9.976651 14.85334 0 200

cssv1\_yhat | 6,253 10.45574 14.94843 .0034547 209.7491

. /\*

> pause "next"

>

> scatter dv cssv1\_yhat

>

> pause "next"

>

> scatter cssv1\_res dv

>

> pause "next"

>

> scatter cssv1\_res cssv1\_yhat

> \*/

. pause "complete: C.SSV.1"