. // Model C.SSV.4

.

. // poisson model

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

note: sp48\_4\_ss\_c\_lag\_all omitted because of collinearity

note: sp75\_1322\_ss\_c\_lag\_all omitted because of collinearity

note: sp75\_373\_ss\_c\_lag\_all omitted because of collinearity

Iteration 0: log pseudolikelihood = -22401.381

Iteration 1: log pseudolikelihood = -19979.344

Iteration 2: log pseudolikelihood = -19967.294

Iteration 3: log pseudolikelihood = -19967.286

Iteration 4: log pseudolikelihood = -19967.286

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,147

Scale parameter = 1

Deviance = 20406.59152 (1/df) Deviance = 3.319764

Pearson = 24644.09612 (1/df) Pearson = 4.009126

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

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

AIC = 6.42037

Log pseudolikelihood = -19967.28586 BIC = -33323.21

(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\_c\_lag\_all | 1.014887 .0105315 1.42 0.154 .9944544 1.03574

sp48\_25\_ss\_c\_lag\_all | .9642805 .0072523 -4.84 0.000 .9501706 .9786

sp48\_26\_ss\_c\_lag\_all | 1.018231 .0235287 0.78 0.434 .9731442 1.065407

sp48\_27\_ss\_c\_lag\_all | 1.018936 .0164537 1.16 0.245 .987192 1.0517

sp48\_28\_ss\_c\_lag\_all | .9843694 .0144636 -1.07 0.284 .9564255 1.01313

sp48\_4\_ss\_c\_lag\_all | 1 (omitted)

sp48\_5\_ss\_c\_lag\_all | 1.000944 .0209076 0.05 0.964 .9607939 1.042773

sp48\_6\_ss\_c\_lag\_all | 1.016703 .0188124 0.90 0.371 .9804923 1.054252

sp48\_7\_ss\_c\_lag\_all | .9947773 .0124203 -0.42 0.675 .9707293 1.019421

sp48\_8\_ss\_c\_lag\_all | 1.031714 .0221176 1.46 0.145 .9892625 1.075987

sp75\_100\_ss\_c\_lag\_all | 1.060519 .0449533 1.39 0.166 .9759731 1.152389

sp75\_1002\_ss\_c\_lag\_all | 1.023597 .0102634 2.33 0.020 1.003678 1.043912

sp75\_1003\_ss\_c\_lag\_all | 1.002612 .0025058 1.04 0.297 .9977125 1.007535

sp75\_1003\_2\_ss\_c\_lag\_all | 1.006321 .0120597 0.53 0.599 .98296 1.030238

sp75\_1311\_ss\_c\_lag\_all | 1.010721 .0302983 0.36 0.722 .9530482 1.071884

sp75\_1315\_ss\_c\_lag\_all | .9655867 .0720693 -0.47 0.639 .8341792 1.117695

sp75\_1316\_ss\_c\_lag\_all | .9986816 .0188377 -0.07 0.944 .9624345 1.036294

sp75\_1318\_ss\_c\_lag\_all | .8601941 .0128172 -10.11 0.000 .8354361 .8856859

sp75\_1322\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1400\_ss\_c\_lag\_all | 1.006698 .0069081 0.97 0.331 .993249 1.020329

sp75\_1400\_1\_ss\_c\_lag\_all | 1.006535 .0451534 0.15 0.885 .9218154 1.099041

sp75\_1403\_10\_ss\_c\_lag\_all | 1.002626 .0022599 1.16 0.245 .9982061 1.007065

sp75\_1403\_5\_ss\_c\_lag\_all | .9982087 .0007036 -2.54 0.011 .9968306 .9995888

sp75\_1403\_6\_ss\_c\_lag\_all | 1.004369 .0014227 3.08 0.002 1.001585 1.007161

sp75\_1403\_7\_ss\_c\_lag\_all | .9759151 .0073773 -3.23 0.001 .9615625 .9904819

sp75\_1403\_8\_ss\_c\_lag\_all | .9974308 .0010476 -2.45 0.014 .9953796 .9994862

sp75\_1404\_ss\_c\_lag\_all | 1.003972 .034591 0.12 0.908 .9384131 1.07411

sp75\_1404\_1\_ss\_c\_lag\_all | .9362582 .0212236 -2.91 0.004 .8955712 .9787936

sp75\_1405\_ss\_c\_lag\_all | 1.000853 .0028229 0.30 0.762 .9953359 1.006402

sp75\_1405\_1\_ss\_c\_lag\_all | 1.094642 .0525823 1.88 0.060 .9962857 1.202709

sp75\_153\_ss\_c\_lag\_all | 1.057493 .0590895 1.00 0.317 .9477966 1.179886

sp75\_155\_ss\_c\_lag\_all | .8728804 .0628739 -1.89 0.059 .7579531 1.005234

sp75\_156\_ss\_c\_lag\_all | .7451513 .0220935 -9.92 0.000 .703083 .7897368

sp75\_1719\_2\_ss\_c\_lag\_all | 1.163171 .0778335 2.26 0.024 1.0202 1.326177

sp75\_1719\_4\_ss\_c\_lag\_all | .9834676 .0158804 -1.03 0.302 .95283 1.01509

sp75\_1720\_ss\_c\_lag\_all | 1.009879 .0051771 1.92 0.055 .9997825 1.020077

sp75\_1725\_ss\_c\_lag\_all | .9995796 .000386 -1.09 0.276 .9988234 1.000336

sp75\_1906\_ss\_c\_lag\_all | 1.116533 .0586662 2.10 0.036 1.007272 1.237646

sp75\_1916\_ss\_c\_lag\_all | .9727846 .0134674 -1.99 0.046 .946744 .9995415

sp75\_203\_ss\_c\_lag\_all | .9970139 .0018715 -1.59 0.111 .9933526 1.000689

sp75\_204\_ss\_c\_lag\_all | 1.004684 .0045354 1.04 0.301 .9958337 1.013613

sp75\_205\_ss\_c\_lag\_all | 1.087162 .0171369 5.30 0.000 1.054087 1.121274

sp75\_207\_ss\_c\_lag\_all | 1.041367 .0237677 1.78 0.076 .9958101 1.089009

sp75\_208\_ss\_c\_lag\_all | 1.000625 .0024768 0.25 0.801 .9957822 1.005491

sp75\_209\_ss\_c\_lag\_all | 1.000983 .0136787 0.07 0.943 .9745293 1.028155

sp75\_212\_ss\_c\_lag\_all | 1.009979 .0039096 2.57 0.010 1.002345 1.017671

sp75\_213\_ss\_c\_lag\_all | 1.026167 .0130859 2.03 0.043 1.000837 1.052138

sp75\_215\_ss\_c\_lag\_all | 1.063924 .0710076 0.93 0.353 .9334697 1.212609

sp75\_332\_ss\_c\_lag\_all | .9689222 .0190644 -1.60 0.109 .932268 1.007018

sp75\_334\_ss\_c\_lag\_all | .9959097 .0068562 -0.60 0.552 .9825621 1.009439

sp75\_337\_ss\_c\_lag\_all | .9958684 .0064677 -0.64 0.524 .9832724 1.008626

sp75\_340\_ss\_c\_lag\_all | .9948866 .0023439 -2.18 0.030 .9903031 .9994912

sp75\_343\_ss\_c\_lag\_all | .9913079 .0256285 -0.34 0.736 .9423284 1.042833

sp75\_373\_ss\_c\_lag\_all | 1 (omitted)

sp75\_388\_ss\_c\_lag\_all | 1.013076 .0148084 0.89 0.374 .9844638 1.04252

sp75\_389\_ss\_c\_lag\_all | .9346973 .0354873 -1.78 0.075 .8676684 1.006904

sp75\_500\_ss\_c\_lag\_all | 1.017871 .0241563 0.75 0.455 .9716099 1.066335

sp75\_500\_1\_ss\_c\_lag\_all | .9055249 .0703441 -1.28 0.201 .7776359 1.054446

sp75\_501\_ss\_c\_lag\_all | 1.083783 .0205036 4.25 0.000 1.044332 1.124723

sp75\_501\_2\_ss\_c\_lag\_all | .9809977 .0463636 -0.41 0.685 .8942085 1.07621

sp75\_502\_ss\_c\_lag\_all | 1.021776 .0403707 0.55 0.586 .9456365 1.104045

sp75\_503\_ss\_c\_lag\_all | .9994537 .0004056 -1.35 0.178 .9986591 1.000249

sp75\_505\_ss\_c\_lag\_all | .9753056 .0423363 -0.58 0.565 .8957597 1.061915

sp75\_506\_1\_ss\_c\_lag\_all | 1.065171 .0312797 2.15 0.032 1.005595 1.128277

sp75\_507\_ss\_c\_lag\_all | 1.020835 .0116908 1.80 0.072 .9981771 1.044008

sp75\_507\_1\_ss\_c\_lag\_all | 1.003848 .006801 0.57 0.571 .9906067 1.017267

sp75\_509\_ss\_c\_lag\_all | 1.031747 .018161 1.78 0.076 .9967592 1.067963

sp75\_512\_1\_ss\_c\_lag\_all | 1.03504 .0524512 0.68 0.497 .9371782 1.143121

sp75\_523\_ss\_c\_lag\_all | .9966553 .0038445 -0.87 0.385 .9891486 1.004219

sp75\_523\_3\_ss\_c\_lag\_all | 1.000097 .0013231 0.07 0.941 .9975075 1.002694

sp75\_524\_ss\_c\_lag\_all | 1.070284 .0176493 4.12 0.000 1.036245 1.105441

sp75\_602\_ss\_c\_lag\_all | .998312 .0101511 -0.17 0.868 .9786131 1.018407

sp75\_603\_ss\_c\_lag\_all | .9876957 .0057575 -2.12 0.034 .9764755 .9990449

sp75\_604\_ss\_c\_lag\_all | .9992943 .0004678 -1.51 0.132 .9983778 1.000212

sp75\_605\_ss\_c\_lag\_all | .9953104 .0047785 -0.98 0.328 .9859886 1.00472

sp75\_606\_ss\_c\_lag\_all | 1.001116 .0014479 0.77 0.440 .9982827 1.003958

sp75\_607\_ss\_c\_lag\_all | .9960205 .0093721 -0.42 0.672 .9778199 1.01456

sp75\_703\_3\_ss\_c\_lag\_all | 1.051783 .0158015 3.36 0.001 1.021264 1.083214

sp75\_807\_ss\_c\_lag\_all | 1.00176 .0026958 0.65 0.514 .9964899 1.007057

sp75\_810\_ss\_c\_lag\_all | 1.003564 .0105027 0.34 0.734 .9831892 1.024362

sp75\_811\_ss\_c\_lag\_all | .9681706 .0274316 -1.14 0.254 .9158713 1.023456

sp75\_812\_ss\_c\_lag\_all | 1.002507 .0242095 0.10 0.917 .956163 1.051098

sp75\_816\_ss\_c\_lag\_all | 1.010042 .0120398 0.84 0.402 .9867177 1.033917

sp75\_817\_ss\_c\_lag\_all | .9452099 .0838422 -0.64 0.525 .7943736 1.124687

sp75\_906\_ss\_c\_lag\_all | .8739425 .0328841 -3.58 0.000 .8118101 .9408303

mine\_time | 1.012454 .0064197 1.95 0.051 .9999499 1.025115

onsite\_insp\_hours | .9999288 .0000366 -1.94 0.052 .999857 1.000001

|

state |

1 | .8713299 .0909941 -1.32 0.187 .7100526 1.069239

2 | 1.573589 .0754305 9.46 0.000 1.43248 1.728598

3 | .6597458 .0645414 -4.25 0.000 .544635 .7991856

4 | 1.138076 .0780246 1.89 0.059 .9949799 1.301752

5 | .98476 .1093142 -0.14 0.890 .792213 1.224105

6 | .885239 .0469754 -2.30 0.022 .7977951 .9822674

7 | 1.100931 .1733341 0.61 0.541 .8086197 1.498912

8 | .4478166 .0203869 -17.65 0.000 .4095897 .4896111

9 | .6151327 .0383506 -7.79 0.000 .5443778 .6950838

10 | .9603219 .0846717 -0.46 0.646 .8079161 1.141478

11 | 3.066768 .3414289 10.07 0.000 2.465557 3.81458

12 | .9839318 .0880101 -0.18 0.856 .8257094 1.172473

13 | 1.505276 .146222 4.21 0.000 1.244316 1.820965

14 | .3935958 .0693062 -5.30 0.000 .2787192 .5558198

15 | .7964985 .0420662 -4.31 0.000 .718174 .8833652

17 | .6112678 .1391227 -2.16 0.031 .3912917 .95491

|

time |

2000 | 1.050132 .0431854 1.19 0.234 .9688119 1.138279

2002 | .958715 .0367122 -1.10 0.271 .8893942 1.033439

2003 | .8347426 .0380518 -3.96 0.000 .763397 .912756

2004 | .8016763 .0380132 -4.66 0.000 .7305291 .8797526

2005 | .7551936 .0373045 -5.68 0.000 .6855061 .8319655

2006 | .7474983 .0395266 -5.50 0.000 .6739069 .8291259

2007 | .7419906 .0431666 -5.13 0.000 .6620309 .8316078

2008 | .6854969 .0396349 -6.53 0.000 .6120539 .7677526

2009 | .6123495 .0375316 -8.00 0.000 .5430355 .6905107

2010 | .5934078 .0397106 -7.80 0.000 .5204646 .6765739

2011 | .5340856 .0343079 -9.76 0.000 .4709041 .6057442

2012 | .4680603 .0311242 -11.42 0.000 .4108661 .5332163

2013 | .4445997 .0331583 -10.87 0.000 .3841373 .5145787

2014 | .4537267 .0378464 -9.47 0.000 .3852953 .534312

2015 | .4290409 .03814 -9.52 0.000 .3604378 .5107013

|

\_cons | .0000947 4.93e-06 -177.85 0.000 .0000855 .0001049

ln(hours) | 1 (exposure)

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.

. quietly poisson dv `ss\_lag\_all\_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 = 20406.59

Prob > chi2(6147) = 0.0000

Pearson goodness-of-fit = 24644.1

Prob > chi2(6147) = 0.0000

.

. pause "next"

.

. // negative binomial model

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

note: sp48\_4\_ss\_c\_lag\_all omitted because of collinearity

note: sp75\_1322\_ss\_c\_lag\_all omitted because of collinearity

note: sp75\_373\_ss\_c\_lag\_all omitted because of collinearity

Iteration 0: log pseudolikelihood = -17708.632

Iteration 1: log pseudolikelihood = -17443.094

Iteration 2: log pseudolikelihood = -17436.369

Iteration 3: log pseudolikelihood = -17436.346

Iteration 4: log pseudolikelihood = -17436.346

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,147

Scale parameter = 1

Deviance = 3784.721926 (1/df) Deviance = .6157023

Pearson = 4775.310048 (1/df) Pearson = .7768521

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

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

AIC = 5.610858

Log pseudolikelihood = -17436.34615 BIC = -49945.08

(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\_c\_lag\_all | 1.020137 .0177765 1.14 0.253 .9858838 1.05558

sp48\_25\_ss\_c\_lag\_all | .9651464 .0100117 -3.42 0.001 .9457221 .9849697

sp48\_26\_ss\_c\_lag\_all | 1.033382 .0202924 1.67 0.094 .9943658 1.07393

sp48\_27\_ss\_c\_lag\_all | 1.024833 .0131284 1.91 0.056 .9994222 1.05089

sp48\_28\_ss\_c\_lag\_all | .9581553 .0144328 -2.84 0.005 .930281 .9868649

sp48\_4\_ss\_c\_lag\_all | 1 (omitted)

sp48\_5\_ss\_c\_lag\_all | 1.017257 .0157623 1.10 0.269 .9868279 1.048624

sp48\_6\_ss\_c\_lag\_all | 1.020482 .0209343 0.99 0.323 .980266 1.062349

sp48\_7\_ss\_c\_lag\_all | .9750723 .0113932 -2.16 0.031 .9529957 .9976603

sp48\_8\_ss\_c\_lag\_all | 1.051913 .0406866 1.31 0.191 .9751164 1.134758

sp75\_100\_ss\_c\_lag\_all | 1.057742 .0494285 1.20 0.230 .9651683 1.159196

sp75\_1002\_ss\_c\_lag\_all | 1.035342 .0199828 1.80 0.072 .9969083 1.075258

sp75\_1003\_ss\_c\_lag\_all | 1.003007 .0026504 1.14 0.256 .9978258 1.008215

sp75\_1003\_2\_ss\_c\_lag\_all | 1.015136 .018758 0.81 0.416 .9790289 1.052575

sp75\_1311\_ss\_c\_lag\_all | 1.083229 .0460494 1.88 0.060 .996631 1.17735

sp75\_1315\_ss\_c\_lag\_all | .8464309 .0975433 -1.45 0.148 .6753026 1.060925

sp75\_1316\_ss\_c\_lag\_all | .9760816 .0233352 -1.01 0.311 .9314003 1.022906

sp75\_1318\_ss\_c\_lag\_all | .8653219 .0165296 -7.57 0.000 .8335235 .8983333

sp75\_1322\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1400\_ss\_c\_lag\_all | 1.011853 .0071187 1.67 0.094 .9979962 1.025902

sp75\_1400\_1\_ss\_c\_lag\_all | .9462568 .0420168 -1.24 0.213 .8673871 1.032298

sp75\_1403\_10\_ss\_c\_lag\_all | 1.0081 .0032878 2.47 0.013 1.001677 1.014565

sp75\_1403\_5\_ss\_c\_lag\_all | .9972075 .0008943 -3.12 0.002 .9954562 .9989619

sp75\_1403\_6\_ss\_c\_lag\_all | 1.003932 .0015094 2.61 0.009 1.000978 1.006895

sp75\_1403\_7\_ss\_c\_lag\_all | .9708718 .0081771 -3.51 0.000 .9549765 .9870317

sp75\_1403\_8\_ss\_c\_lag\_all | .99851 .0013663 -1.09 0.276 .9958357 1.001191

sp75\_1404\_ss\_c\_lag\_all | 1.023462 .0488007 0.49 0.627 .9321474 1.123721

sp75\_1404\_1\_ss\_c\_lag\_all | .8798943 .0398512 -2.83 0.005 .8051537 .9615729

sp75\_1405\_ss\_c\_lag\_all | 1.003183 .0037735 0.84 0.398 .9958141 1.010606

sp75\_1405\_1\_ss\_c\_lag\_all | 1.067119 .0673041 1.03 0.303 .9430324 1.207532

sp75\_153\_ss\_c\_lag\_all | 1.025928 .0611954 0.43 0.668 .9127331 1.153162

sp75\_155\_ss\_c\_lag\_all | .8430898 .105882 -1.36 0.174 .6591331 1.078387

sp75\_156\_ss\_c\_lag\_all | .7270373 .0286168 -8.10 0.000 .6730582 .7853455

sp75\_1719\_2\_ss\_c\_lag\_all | 1.228112 .0781369 3.23 0.001 1.084131 1.391216

sp75\_1719\_4\_ss\_c\_lag\_all | .9731581 .0138074 -1.92 0.055 .9464688 1.0006

sp75\_1720\_ss\_c\_lag\_all | 1.018866 .0070463 2.70 0.007 1.005149 1.032771

sp75\_1725\_ss\_c\_lag\_all | .9994732 .0004932 -1.07 0.286 .9985071 1.00044

sp75\_1906\_ss\_c\_lag\_all | 1.157588 .0852716 1.99 0.047 1.001963 1.337385

sp75\_1916\_ss\_c\_lag\_all | .9601697 .0161749 -2.41 0.016 .9289852 .992401

sp75\_203\_ss\_c\_lag\_all | .995877 .0023643 -1.74 0.082 .9912538 1.000522

sp75\_204\_ss\_c\_lag\_all | 1.010304 .0055583 1.86 0.062 .9994683 1.021257

sp75\_205\_ss\_c\_lag\_all | 1.103 .0187253 5.77 0.000 1.066903 1.140319

sp75\_207\_ss\_c\_lag\_all | 1.034792 .0223843 1.58 0.114 .9918367 1.079608

sp75\_208\_ss\_c\_lag\_all | .9991667 .0031521 -0.26 0.792 .9930077 1.005364

sp75\_209\_ss\_c\_lag\_all | 1.012529 .015756 0.80 0.424 .9821139 1.043886

sp75\_212\_ss\_c\_lag\_all | 1.005389 .0061055 0.88 0.376 .993493 1.017427

sp75\_213\_ss\_c\_lag\_all | 1.038094 .0205211 1.89 0.059 .9986429 1.079104

sp75\_215\_ss\_c\_lag\_all | 1.011636 .0738745 0.16 0.874 .8767297 1.167302

sp75\_332\_ss\_c\_lag\_all | .9687399 .0190024 -1.62 0.105 .9322027 1.006709

sp75\_334\_ss\_c\_lag\_all | .990609 .008808 -1.06 0.289 .9734951 1.008024

sp75\_337\_ss\_c\_lag\_all | 1.0077 .0121887 0.63 0.526 .9840912 1.031874

sp75\_340\_ss\_c\_lag\_all | .9930497 .0025139 -2.76 0.006 .9881346 .9979892

sp75\_343\_ss\_c\_lag\_all | .981797 .0283522 -0.64 0.525 .927771 1.038969

sp75\_373\_ss\_c\_lag\_all | 1 (omitted)

sp75\_388\_ss\_c\_lag\_all | 1.018346 .0155326 1.19 0.233 .988353 1.049249

sp75\_389\_ss\_c\_lag\_all | .9265387 .0347627 -2.03 0.042 .8608499 .9972399

sp75\_500\_ss\_c\_lag\_all | 1.044769 .0289472 1.58 0.114 .9895463 1.103073

sp75\_500\_1\_ss\_c\_lag\_all | .9543388 .0943897 -0.47 0.637 .7861652 1.158488

sp75\_501\_ss\_c\_lag\_all | 1.065899 .033267 2.04 0.041 1.002651 1.133137

sp75\_501\_2\_ss\_c\_lag\_all | 1.004797 .0517806 0.09 0.926 .9082655 1.111587

sp75\_502\_ss\_c\_lag\_all | 1.014961 .0505114 0.30 0.765 .9206357 1.118951

sp75\_503\_ss\_c\_lag\_all | .9992196 .0004643 -1.68 0.093 .99831 1.00013

sp75\_505\_ss\_c\_lag\_all | .9537819 .0437984 -1.03 0.303 .8716884 1.043607

sp75\_506\_1\_ss\_c\_lag\_all | .990068 .0480476 -0.21 0.837 .9002363 1.088864

sp75\_507\_ss\_c\_lag\_all | .993191 .0153311 -0.44 0.658 .9635926 1.023699

sp75\_507\_1\_ss\_c\_lag\_all | 1.005582 .0098265 0.57 0.569 .9865055 1.025027

sp75\_509\_ss\_c\_lag\_all | 1.010354 .0180505 0.58 0.564 .9755876 1.046359

sp75\_512\_1\_ss\_c\_lag\_all | .9507093 .0972888 -0.49 0.621 .7779324 1.16186

sp75\_523\_ss\_c\_lag\_all | .9940205 .0041573 -1.43 0.152 .9859057 1.002202

sp75\_523\_3\_ss\_c\_lag\_all | .9986792 .0013984 -0.94 0.345 .9959422 1.001424

sp75\_524\_ss\_c\_lag\_all | 1.05377 .0137391 4.02 0.000 1.027183 1.081046

sp75\_602\_ss\_c\_lag\_all | 1.027385 .0220364 1.26 0.208 .9850897 1.071496

sp75\_603\_ss\_c\_lag\_all | 1.004573 .0137987 0.33 0.740 .9778892 1.031986

sp75\_604\_ss\_c\_lag\_all | 1.000498 .0009244 0.54 0.590 .9986874 1.002311

sp75\_605\_ss\_c\_lag\_all | 1.000198 .0063143 0.03 0.975 .9878984 1.012651

sp75\_606\_ss\_c\_lag\_all | 1.001652 .0020111 0.82 0.411 .9977175 1.005601

sp75\_607\_ss\_c\_lag\_all | .9996871 .0101545 -0.03 0.975 .9799814 1.019789

sp75\_703\_3\_ss\_c\_lag\_all | 1.04403 .0256238 1.76 0.079 .994997 1.095479

sp75\_807\_ss\_c\_lag\_all | 1.002434 .0036666 0.66 0.506 .9952733 1.009646

sp75\_810\_ss\_c\_lag\_all | 1.019507 .0229702 0.86 0.391 .9754656 1.065536

sp75\_811\_ss\_c\_lag\_all | .9970571 .0243497 -0.12 0.904 .9504568 1.045942

sp75\_812\_ss\_c\_lag\_all | .9685374 .0279472 -1.11 0.268 .915282 1.024892

sp75\_816\_ss\_c\_lag\_all | .9981259 .0177205 -0.11 0.916 .9639917 1.033469

sp75\_817\_ss\_c\_lag\_all | .9387114 .0951837 -0.62 0.533 .7695233 1.145097

sp75\_906\_ss\_c\_lag\_all | .9331124 .0432144 -1.49 0.135 .852144 1.021774

mine\_time | 1.011629 .0066967 1.75 0.081 .9985883 1.02484

onsite\_insp\_hours | .9999436 .0000416 -1.36 0.175 .9998621 1.000025

|

state |

1 | .8261557 .140426 -1.12 0.261 .5920778 1.152776

2 | 1.10956 .0558449 2.07 0.039 1.005331 1.224594

3 | .7022066 .0675457 -3.68 0.000 .5815503 .8478958

4 | 1.086125 .0829998 1.08 0.280 .9350448 1.261616

5 | .8763539 .0937299 -1.23 0.217 .7106239 1.080735

6 | .7300924 .0355997 -6.45 0.000 .6635487 .8033094

7 | 1.102326 .2505396 0.43 0.668 .7060681 1.72097

8 | .4593306 .0180307 -19.82 0.000 .4253163 .4960651

9 | .536662 .0518188 -6.45 0.000 .4441308 .6484714

10 | .8164866 .103167 -1.60 0.109 .637376 1.04593

11 | 2.93784 .4171437 7.59 0.000 2.22416 3.880522

12 | .9601627 .0753918 -0.52 0.605 .8232063 1.119905

13 | 1.579835 .1872572 3.86 0.000 1.252331 1.992987

14 | .4189256 .0824414 -4.42 0.000 .284857 .616094

15 | .6985383 .0391451 -6.40 0.000 .6258786 .7796333

17 | .5505949 .1224708 -2.68 0.007 .356038 .8514675

|

time |

2000 | 1.039896 .0582244 0.70 0.485 .9318172 1.160511

2002 | .8899269 .051179 -2.03 0.043 .7950645 .9961077

2003 | .8358916 .0546566 -2.74 0.006 .735347 .9501837

2004 | .7571221 .0466499 -4.52 0.000 .6709951 .8543042

2005 | .6892819 .0425963 -6.02 0.000 .6106527 .7780356

2006 | .6869608 .0442254 -5.83 0.000 .6055264 .779347

2007 | .6685647 .0456242 -5.90 0.000 .5848651 .7642424

2008 | .596692 .0422361 -7.29 0.000 .5193965 .6854906

2009 | .5422639 .0400903 -8.28 0.000 .469116 .6268176

2010 | .5290233 .0384859 -8.75 0.000 .4587232 .6100969

2011 | .4894942 .0353892 -9.88 0.000 .4248229 .5640106

2012 | .432268 .0346783 -10.45 0.000 .369374 .5058713

2013 | .4268452 .0363988 -9.98 0.000 .3611479 .5044937

2014 | .4047611 .0342474 -10.69 0.000 .3429078 .4777714

2015 | .3761222 .0329509 -11.16 0.000 .31678 .4465808

|

\_cons | .0001123 7.75e-06 -131.80 0.000 .0000981 .0001285

ln(hours) | 1 (exposure)

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

.

. pause "next"

.

. eststo clear

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

note: sp48\_4\_ss\_c\_lag\_all omitted because of collinearity

note: sp75\_1322\_ss\_c\_lag\_all omitted because of collinearity

note: sp75\_373\_ss\_c\_lag\_all omitted because of collinearity

Fitting Poisson model:

Iteration 0: log pseudolikelihood = -39639.747

Iteration 1: log pseudolikelihood = -20739.153

Iteration 2: log pseudolikelihood = -19980.074

Iteration 3: log pseudolikelihood = -19967.289

Iteration 4: log pseudolikelihood = -19967.286

Iteration 5: log pseudolikelihood = -19967.286

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 = -16759.262

Iteration 1: log pseudolikelihood = -16592.338

Iteration 2: log pseudolikelihood = -16573.148

Iteration 3: log pseudolikelihood = -16573.051

Iteration 4: log pseudolikelihood = -16573.051

Negative binomial regression Number of obs = 6,253

Wald chi2(105) = .

Dispersion = mean Prob > chi2 = .

Log pseudolikelihood = -16573.051 Pseudo R2 = 0.0470

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

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

| Robust

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

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

sp48\_11\_ss\_c\_lag\_all | 1.016217 .0156531 1.04 0.296 .9859959 1.047364

sp48\_25\_ss\_c\_lag\_all | .9629418 .0089943 -4.04 0.000 .9454737 .9807327

sp48\_26\_ss\_c\_lag\_all | 1.034056 .0201776 1.72 0.086 .9952554 1.074369

sp48\_27\_ss\_c\_lag\_all | 1.025096 .0125143 2.03 0.042 1.000859 1.049919

sp48\_28\_ss\_c\_lag\_all | .965465 .0137291 -2.47 0.013 .9389281 .992752

sp48\_4\_ss\_c\_lag\_all | 1 (omitted)

sp48\_5\_ss\_c\_lag\_all | 1.01946 .0156932 1.25 0.211 .9891613 1.050687

sp48\_6\_ss\_c\_lag\_all | 1.020111 .0204793 0.99 0.321 .9807519 1.06105

sp48\_7\_ss\_c\_lag\_all | .9784892 .0111553 -1.91 0.056 .9568677 1.000599

sp48\_8\_ss\_c\_lag\_all | 1.037195 .0345867 1.10 0.273 .9715742 1.107248

sp75\_100\_ss\_c\_lag\_all | 1.063735 .0470505 1.40 0.162 .9754021 1.160068

sp75\_1002\_ss\_c\_lag\_all | 1.031715 .0175067 1.84 0.066 .997967 1.066605

sp75\_1003\_ss\_c\_lag\_all | 1.003535 .0025037 1.41 0.157 .9986393 1.008454

sp75\_1003\_2\_ss\_c\_lag\_all | 1.010033 .0181201 0.56 0.578 .9751356 1.04618

sp75\_1311\_ss\_c\_lag\_all | 1.049318 .0370885 1.36 0.173 .9790869 1.124587

sp75\_1315\_ss\_c\_lag\_all | .886679 .0782141 -1.36 0.173 .745902 1.054025

sp75\_1316\_ss\_c\_lag\_all | .9857253 .0195551 -0.72 0.469 .9481335 1.024808

sp75\_1318\_ss\_c\_lag\_all | .8698484 .0146146 -8.30 0.000 .8416708 .8989694

sp75\_1322\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1400\_ss\_c\_lag\_all | 1.010405 .0066589 1.57 0.116 .9974378 1.023541

sp75\_1400\_1\_ss\_c\_lag\_all | .975991 .0427457 -0.55 0.579 .8957061 1.063472

sp75\_1403\_10\_ss\_c\_lag\_all | 1.005191 .0027409 1.90 0.058 .9998328 1.010577

sp75\_1403\_5\_ss\_c\_lag\_all | .9976568 .0008382 -2.79 0.005 .9960153 .9993009

sp75\_1403\_6\_ss\_c\_lag\_all | 1.003912 .0013956 2.81 0.005 1.00118 1.006651

sp75\_1403\_7\_ss\_c\_lag\_all | .9734152 .007526 -3.49 0.000 .9587756 .9882782

sp75\_1403\_8\_ss\_c\_lag\_all | .9983119 .0012342 -1.37 0.172 .9958959 1.000734

sp75\_1404\_ss\_c\_lag\_all | 1.018563 .042275 0.44 0.658 .9389858 1.104884

sp75\_1404\_1\_ss\_c\_lag\_all | .8861027 .0327053 -3.28 0.001 .8242651 .9525794

sp75\_1405\_ss\_c\_lag\_all | 1.002528 .0034882 0.73 0.468 .9957148 1.009389

sp75\_1405\_1\_ss\_c\_lag\_all | 1.064347 .060575 1.10 0.273 .9520041 1.189946

sp75\_153\_ss\_c\_lag\_all | 1.038776 .0578566 0.68 0.495 .9313494 1.158594

sp75\_155\_ss\_c\_lag\_all | .8645067 .0940425 -1.34 0.181 .698511 1.06995

sp75\_156\_ss\_c\_lag\_all | .7332724 .0246439 -9.23 0.000 .6865277 .7831998

sp75\_1719\_2\_ss\_c\_lag\_all | 1.225716 .074027 3.37 0.001 1.088884 1.379742

sp75\_1719\_4\_ss\_c\_lag\_all | .9738914 .0147846 -1.74 0.081 .9453409 1.003304

sp75\_1720\_ss\_c\_lag\_all | 1.015954 .0062597 2.57 0.010 1.003759 1.028297

sp75\_1725\_ss\_c\_lag\_all | .9994896 .0004473 -1.14 0.254 .9986132 1.000367

sp75\_1906\_ss\_c\_lag\_all | 1.164847 .0728673 2.44 0.015 1.030438 1.316789

sp75\_1916\_ss\_c\_lag\_all | .9681599 .0151008 -2.07 0.038 .9390108 .9982139

sp75\_203\_ss\_c\_lag\_all | .9961881 .0021035 -1.81 0.070 .9920739 1.000319

sp75\_204\_ss\_c\_lag\_all | 1.009677 .0052238 1.86 0.063 .9994898 1.019967

sp75\_205\_ss\_c\_lag\_all | 1.106751 .0180647 6.21 0.000 1.071905 1.142729

sp75\_207\_ss\_c\_lag\_all | 1.03854 .0211635 1.86 0.063 .9978773 1.080859

sp75\_208\_ss\_c\_lag\_all | 1.000568 .0028024 0.20 0.839 .9950907 1.006076

sp75\_209\_ss\_c\_lag\_all | 1.00883 .0145234 0.61 0.541 .9807627 1.037701

sp75\_212\_ss\_c\_lag\_all | 1.007842 .0051009 1.54 0.123 .9978935 1.017889

sp75\_213\_ss\_c\_lag\_all | 1.033596 .018112 1.89 0.059 .9986993 1.069711

sp75\_215\_ss\_c\_lag\_all | 1.045701 .0748937 0.62 0.533 .9087487 1.203292

sp75\_332\_ss\_c\_lag\_all | .970785 .0177517 -1.62 0.105 .9366083 1.006209

sp75\_334\_ss\_c\_lag\_all | .9903863 .0073374 -1.30 0.192 .9761091 1.004872

sp75\_337\_ss\_c\_lag\_all | 1.005098 .0086458 0.59 0.554 .9882943 1.022187

sp75\_340\_ss\_c\_lag\_all | .9930246 .0023614 -2.94 0.003 .988407 .9976637

sp75\_343\_ss\_c\_lag\_all | .9818825 .0261282 -0.69 0.492 .9319847 1.034452

sp75\_373\_ss\_c\_lag\_all | 1 (omitted)

sp75\_388\_ss\_c\_lag\_all | 1.016886 .0151885 1.12 0.262 .9875484 1.047095

sp75\_389\_ss\_c\_lag\_all | .9323022 .0334539 -1.95 0.051 .8689864 1.000231

sp75\_500\_ss\_c\_lag\_all | 1.041297 .0282263 1.49 0.135 .9874187 1.098116

sp75\_500\_1\_ss\_c\_lag\_all | .9579565 .0895233 -0.46 0.646 .7976254 1.150516

sp75\_501\_ss\_c\_lag\_all | 1.06738 .0287338 2.42 0.015 1.012523 1.12521

sp75\_501\_2\_ss\_c\_lag\_all | 1.001116 .0513313 0.02 0.983 .9053983 1.106952

sp75\_502\_ss\_c\_lag\_all | .9993151 .0437831 -0.02 0.988 .9170831 1.088921

sp75\_503\_ss\_c\_lag\_all | .9992863 .0004259 -1.68 0.094 .9984519 1.000121

sp75\_505\_ss\_c\_lag\_all | .9538278 .0392165 -1.15 0.250 .8799802 1.033873

sp75\_506\_1\_ss\_c\_lag\_all | 1.003215 .0414489 0.08 0.938 .9251789 1.087833

sp75\_507\_ss\_c\_lag\_all | 1.003165 .0140548 0.23 0.822 .9759929 1.031094

sp75\_507\_1\_ss\_c\_lag\_all | 1.005232 .0086539 0.61 0.544 .9884133 1.022337

sp75\_509\_ss\_c\_lag\_all | 1.018996 .0177985 1.08 0.281 .9847017 1.054484

sp75\_512\_1\_ss\_c\_lag\_all | .986335 .0871858 -0.16 0.876 .8294374 1.172912

sp75\_523\_ss\_c\_lag\_all | .9947566 .0039143 -1.34 0.182 .9871142 1.002458

sp75\_523\_3\_ss\_c\_lag\_all | .9988759 .0013013 -0.86 0.388 .9963287 1.00143

sp75\_524\_ss\_c\_lag\_all | 1.060538 .0136019 4.58 0.000 1.034212 1.087535

sp75\_602\_ss\_c\_lag\_all | 1.01613 .0191336 0.85 0.395 .9793127 1.054332

sp75\_603\_ss\_c\_lag\_all | .9967172 .0091852 -0.36 0.721 .9788761 1.014884

sp75\_604\_ss\_c\_lag\_all | .9998009 .0006818 -0.29 0.770 .9984655 1.001138

sp75\_605\_ss\_c\_lag\_all | .9993386 .0051368 -0.13 0.898 .9893213 1.009457

sp75\_606\_ss\_c\_lag\_all | 1.001692 .0018356 0.92 0.356 .9981003 1.005296

sp75\_607\_ss\_c\_lag\_all | .9967538 .0092462 -0.35 0.726 .9787953 1.015042

sp75\_703\_3\_ss\_c\_lag\_all | 1.052593 .0220461 2.45 0.014 1.010258 1.096702

sp75\_807\_ss\_c\_lag\_all | 1.003233 .003185 1.02 0.309 .9970102 1.009495

sp75\_810\_ss\_c\_lag\_all | 1.014088 .016295 0.87 0.384 .9826479 1.046534

sp75\_811\_ss\_c\_lag\_all | .9884254 .0228643 -0.50 0.615 .9446129 1.03427

sp75\_812\_ss\_c\_lag\_all | .976502 .0255766 -0.91 0.364 .9276377 1.02794

sp75\_816\_ss\_c\_lag\_all | 1.000383 .0156568 0.02 0.980 .9701626 1.031546

sp75\_817\_ss\_c\_lag\_all | .9422205 .0921012 -0.61 0.543 .777944 1.141187

sp75\_906\_ss\_c\_lag\_all | .9118434 .0407835 -2.06 0.039 .8353127 .9953857

mine\_time | 1.011035 .0063289 1.75 0.080 .9987063 1.023516

onsite\_insp\_hours | .9999527 .0000385 -1.23 0.219 .9998773 1.000028

|

state |

1 | .834241 .1305345 -1.16 0.247 .6139079 1.133652

2 | 1.244132 .0600893 4.52 0.000 1.131762 1.36766

3 | .6943116 .0641254 -3.95 0.000 .5793472 .8320894

4 | 1.069194 .0716451 1.00 0.318 .9376024 1.219254

5 | .8722224 .0860296 -1.39 0.166 .7189041 1.058238

6 | .7551669 .0348327 -6.09 0.000 .6898912 .8266189

7 | 1.093669 .2238875 0.44 0.662 .7322078 1.633568

8 | .4480825 .0176377 -20.39 0.000 .4148131 .4840202

9 | .5650936 .0495468 -6.51 0.000 .4758695 .6710468

10 | .8412495 .0944553 -1.54 0.124 .6750751 1.048329

11 | 3.013775 .3716267 8.95 0.000 2.366735 3.837708

12 | 1.021813 .0721584 0.31 0.760 .8897365 1.173496

13 | 1.527717 .1655296 3.91 0.000 1.235419 1.889171

14 | .4043877 .0817483 -4.48 0.000 .2720977 .6009953

15 | .7254467 .0371853 -6.26 0.000 .6561063 .8021153

17 | .5607596 .1238559 -2.62 0.009 .3637227 .8645359

|

time |

2000 | 1.059547 .0468145 1.31 0.190 .9716526 1.155391

2002 | .9159702 .0421742 -1.91 0.057 .8369303 1.002475

2003 | .8360163 .0436962 -3.43 0.001 .754614 .9261997

2004 | .7800848 .0387541 -5.00 0.000 .707709 .8598624

2005 | .7128152 .036247 -6.66 0.000 .645198 .7875188

2006 | .7141077 .0376087 -6.39 0.000 .6440728 .791758

2007 | .7038451 .0402195 -6.15 0.000 .6292703 .7872577

2008 | .6228879 .0365024 -8.08 0.000 .5553003 .6987018

2009 | .5582577 .0341685 -9.52 0.000 .4951495 .6294092

2010 | .5461494 .0338507 -9.76 0.000 .4836747 .6166938

2011 | .5022817 .0311839 -11.09 0.000 .4447347 .5672752

2012 | .4380952 .0297669 -12.15 0.000 .3834711 .5005003

2013 | .420205 .0302203 -12.06 0.000 .3649594 .4838134

2014 | .4141277 .0309604 -11.79 0.000 .3576828 .47948

2015 | .3940444 .0309146 -11.87 0.000 .3378816 .4595425

|

\_cons | .000107 5.92e-06 -165.07 0.000 .000096 .0001192

ln(hours) | 1 (exposure)

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

/lnalpha | -1.281284 .0593575 -1.397623 -1.164946

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

alpha | .2776804 .0164824 .2471838 .3119395

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

(est1 stored)

. esttab using `"`directory'Model.`injury\_label'.`time\_label'.`violation\_level\_label'.C.SSV.4.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.4.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.4.csv)

. est store nbin

.

. pause "next"

.

. // test for over-dispersion

. lrtest pois nbin, stats force

Likelihood-ratio test LR chi2(1) = 6788.47

(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 -19967.29 106 40146.57 40861.1

nbin | 6,253 -17389.65 -16573.05 107 33360.1 34081.37

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

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

.

. pause "next"

.

. // final model + diagnostics/assessment

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

. predict cssv4\_yhat

(option n assumed; predicted number of events)

. gen cssv4\_res = dv - cssv4\_yhat

.

. summ dv cssv4\_yhat

Variable | Obs Mean Std. Dev. Min Max

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

dv | 6,253 9.976651 14.85334 0 200

cssv4\_yhat | 6,253 10.43521 15.0055 .0032708 149.9487

. /\*

> pause "next"

>

> scatter dv cssv4\_yhat

>

> pause "next"

>

> scatter cssv4\_res dv

>

> pause "next"

>

> scatter cssv4\_res cssv4\_yhat

> \*/

. pause "complete: C.SSV.4"