.

. // Model C.V.2

.

. // poisson model

. glm dv `count\_lag\_1\_vars' `covariates' ib(freq).state ib(freq).time, family(poisson) link(log) vce(cl mineid) exposure(hours) iter(50) eform

Iteration 0: log pseudolikelihood = -22348.557

Iteration 1: log pseudolikelihood = -20010.003

Iteration 2: log pseudolikelihood = -19999.779

Iteration 3: log pseudolikelihood = -19999.774

Iteration 4: log pseudolikelihood = -19999.774

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,137

Scale parameter = 1

Deviance = 20471.56849 (1/df) Deviance = 3.335762

Pearson = 24749.54218 (1/df) Pearson = 4.032841

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

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

AIC = 6.433959

Log pseudolikelihood = -19999.77435 BIC = -33170.82

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

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

| Robust

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

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

sp48\_11\_1lag | 1.012259 .0306809 0.40 0.688 .9538767 1.074214

sp75\_1311\_1lag | .944621 .0753755 -0.71 0.475 .8078607 1.104533

sp75\_1400\_1\_1lag | 1.030265 .2017732 0.15 0.879 .7018501 1.512353

sp75\_1404\_1\_1lag | 1.042535 .0926686 0.47 0.639 .8758487 1.240943

sp75\_1405\_1\_1lag | 1.247797 .0611101 4.52 0.000 1.133593 1.373508

sp75\_500\_1\_1lag | .8014797 .1299847 -1.36 0.172 .5832355 1.10139

sp75\_501\_1lag | 1.115454 .0717645 1.70 0.089 .9833048 1.265362

sp75\_506\_1\_1lag | 1.084009 .0375044 2.33 0.020 1.012939 1.160066

sp75\_507\_1\_1lag | .9993948 .0175897 -0.03 0.973 .9655076 1.034471

sp75\_508\_1\_1lag | .5598636 .0591647 -5.49 0.000 .4551241 .6887073

sp75\_512\_1\_1lag | 1.067932 .0962153 0.73 0.466 .8950653 1.274185

sp75\_811\_1lag | 1.009205 .0333958 0.28 0.782 .9458274 1.076828

sp75\_1002\_1lag | 1.001563 .0135034 0.12 0.908 .9754433 1.028382

sp75\_1003\_2\_1lag | .978739 .0435863 -0.48 0.629 .8969335 1.068006

sp75\_1322\_1lag | 2.023453 .3677593 3.88 0.000 1.417062 2.889334

sp75\_1719\_2\_1lag | .9449211 .0382816 -1.40 0.162 .8727921 1.023011

sp75\_212\_1lag | 1.086121 .0271791 3.30 0.001 1.034136 1.140719

sp75\_332\_1lag | .9382336 .0575394 -1.04 0.299 .8319727 1.058066

sp75\_501\_2\_1lag | .9605204 .0638303 -0.61 0.544 .8432201 1.094138

sp75\_502\_1lag | .9968207 .1052537 -0.03 0.976 .8104742 1.226012

sp75\_602\_1lag | 1.007359 .0178512 0.41 0.679 .9729714 1.042961

sp75\_812\_1lag | 1.127339 .1080405 1.25 0.211 .9342824 1.360288

sp75\_1003\_1lag | .9756356 .0112143 -2.15 0.032 .9539018 .9978646

sp75\_153\_1lag | 1.121861 .1967524 0.66 0.512 .7955276 1.582061

sp75\_203\_1lag | 1.011382 .008243 1.39 0.165 .9953548 1.027668

sp75\_213\_1lag | 1.193183 .0577839 3.65 0.000 1.085137 1.311986

sp75\_343\_1lag | 1.050922 .0416692 1.25 0.210 .9723441 1.135849

sp75\_373\_1lag | .8399745 .27318 -0.54 0.592 .444053 1.588903

sp75\_503\_1lag | 1.001548 .0017239 0.90 0.369 .9981754 1.004933

sp75\_523\_1lag | .9456811 .0152164 -3.47 0.001 .9163229 .9759799

sp75\_523\_3\_1lag | .9880429 .0053022 -2.24 0.025 .9777051 .9984899

sp75\_603\_1lag | 1.030483 .0218575 1.42 0.157 .9885219 1.074226

sp75\_703\_3\_1lag | 1.046726 .0382805 1.25 0.212 .9743239 1.124509

sp48\_24\_1lag | 1.122497 .0099341 13.06 0.000 1.103194 1.142137

sp48\_4\_1lag | 2.270902 .2987605 6.23 0.000 1.754746 2.938886

sp75\_1404\_1lag | .9013219 .1333759 -0.70 0.483 .674405 1.20459

sp75\_1719\_4\_1lag | 1.030012 .0228298 1.33 0.182 .9862247 1.075744

sp75\_204\_1lag | 1.007713 .0098417 0.79 0.431 .9886073 1.027188

sp75\_334\_1lag | 1.023846 .0245112 0.98 0.325 .9769146 1.073032

sp75\_524\_1lag | 1.15698 .150975 1.12 0.264 .8958843 1.494168

sp75\_604\_1lag | 1.009672 .0034708 2.80 0.005 1.002893 1.016498

sp75\_703\_4\_1lag | .5628942 .1009128 -3.21 0.001 .3961209 .7998818

sp48\_25\_1lag | .9682522 .0411573 -0.76 0.448 .8908542 1.052375

sp48\_5\_1lag | 1.033744 .0662442 0.52 0.605 .9117301 1.172086

sp75\_1315\_1lag | 1.209116 .361231 0.64 0.525 .6732344 2.17155

sp75\_1403\_5\_1lag | .9928663 .0050161 -1.42 0.156 .9830834 1.002747

sp75\_1405\_1lag | .9848872 .0111326 -1.35 0.178 .9633076 1.00695

sp75\_155\_1lag | 1.150089 .2220105 0.72 0.469 .7878025 1.678979

sp75\_1725\_1lag | .9988589 .0021177 -0.54 0.590 .9947169 1.003018

sp75\_205\_1lag | 1.235776 .2123321 1.23 0.218 .8824412 1.730589

sp75\_215\_1lag | 1.107038 .1307313 0.86 0.389 .8783006 1.395346

sp75\_505\_1lag | .9523393 .1064405 -0.44 0.662 .7649888 1.185573

sp75\_605\_1lag | .9929296 .0109116 -0.65 0.518 .9717718 1.014548

sp48\_26\_1lag | 1.073587 .0411422 1.85 0.064 .9959041 1.15733

sp48\_6\_1lag | 1.025334 .0333592 0.77 0.442 .9619921 1.092846

sp75\_1316\_1lag | .7837356 .1182322 -1.62 0.106 .5831223 1.053367

sp75\_1403\_6\_1lag | .9985323 .0039136 -0.37 0.708 .9908912 1.006232

sp75\_156\_1lag | .8024194 .0767145 -2.30 0.021 .6653087 .9677868

sp75\_1906\_1lag | 1.103897 .0242939 4.49 0.000 1.057295 1.152554

sp75\_1916\_1lag | 1.016489 .0198119 0.84 0.401 .9783907 1.056071

sp75\_606\_1lag | .9987735 .0059369 -0.21 0.836 .987205 1.010478

sp75\_816\_1lag | 1.006336 .015161 0.42 0.675 .9770552 1.036494

sp75\_906\_1lag | .7508264 .0706899 -3.04 0.002 .6243087 .9029833

sp48\_27\_1lag | .9684694 .0450079 -0.69 0.491 .8841539 1.060826

sp48\_7\_1lag | 1.003428 .024097 0.14 0.887 .9572933 1.051787

sp75\_1403\_7\_1lag | 1.01285 .0205937 0.63 0.530 .9732811 1.054028

sp75\_207\_1lag | 1.097792 .0866561 1.18 0.237 .9404358 1.281478

sp75\_327\_1lag | .9012325 .1649364 -0.57 0.570 .6295884 1.290081

sp75\_337\_1lag | .9749842 .0195213 -1.27 0.206 .9374641 1.014006

sp75\_507\_1lag | 1.047441 .0266922 1.82 0.069 .9964101 1.101085

sp75\_607\_1lag | .9705674 .023601 -1.23 0.219 .9253954 1.017945

sp75\_807\_1lag | 1.008776 .0062489 1.41 0.158 .9966025 1.021098

sp75\_817\_1lag | .8398579 .0649754 -2.26 0.024 .7216934 .9773696

sp48\_28\_1lag | .9413113 .0534621 -1.06 0.287 .842149 1.05215

sp48\_8\_1lag | 1.024179 .0585502 0.42 0.676 .9156178 1.145611

sp75\_1318\_1lag | 1.100741 .1605178 0.66 0.510 .8270976 1.464918

sp75\_1403\_8\_1lag | .9887749 .0038255 -2.92 0.004 .9813054 .9963012

sp75\_208\_1lag | 1.00553 .0123068 0.45 0.652 .9816961 1.029942

sp75\_388\_1lag | 1.026794 .0402251 0.67 0.500 .9509048 1.108739

sp75\_209\_1lag | 1.014572 .0462802 0.32 0.751 .9278012 1.109458

sp75\_389\_1lag | 1.062341 .1163621 0.55 0.581 .8570942 1.316737

sp75\_509\_1lag | 1.178038 .0755611 2.55 0.011 1.038872 1.335847

sp75\_100\_1lag | 1.155231 .0885798 1.88 0.060 .9940334 1.342568

sp75\_1400\_1lag | 1.009019 .0281962 0.32 0.748 .9552413 1.065824

sp75\_1403\_10\_1lag | .9984679 .0069674 -0.22 0.826 .984905 1.012218

sp75\_160\_1lag | 1.010921 .1571538 0.07 0.944 .7454063 1.371014

sp75\_1720\_1lag | 1.063671 .0250453 2.62 0.009 1.015699 1.113909

sp75\_340\_1lag | .9836483 .0056439 -2.87 0.004 .9726484 .9947726

sp75\_500\_1lag | .9582673 .0327742 -1.25 0.213 .8961368 1.024705

sp75\_510\_1lag | .8929884 .0980271 -1.03 0.303 .7201217 1.107352

sp75\_810\_1lag | 1.080998 .0197381 4.27 0.000 1.042996 1.120385

mine\_time | 1.010591 .0056232 1.89 0.058 .99963 1.021673

onsite\_insp\_hours | .9998419 .0000315 -5.02 0.000 .9997802 .9999037

|

state |

1 | .9098084 .0861421 -1.00 0.318 .7557129 1.095325

2 | 1.464784 .0668494 8.36 0.000 1.339451 1.601845

3 | .5953675 .0578174 -5.34 0.000 .492179 .72019

4 | .9964482 .0635678 -0.06 0.956 .8793319 1.129163

5 | .9124986 .0746707 -1.12 0.263 .77728 1.07124

6 | .8704632 .0424754 -2.84 0.004 .7910699 .9578245

7 | 1.067712 .168123 0.42 0.677 .7841928 1.453734

8 | .4827389 .0211696 -16.61 0.000 .4429802 .5260659

9 | .6157227 .0234639 -12.73 0.000 .5714098 .6634721

10 | .994086 .0958659 -0.06 0.951 .8228815 1.20091

11 | 1.573679 .2682446 2.66 0.008 1.126738 2.197907

12 | 1.014841 .080652 0.19 0.853 .8684623 1.185892

13 | 1.481911 .1427889 4.08 0.000 1.226888 1.789943

14 | .3869613 .0571889 -6.42 0.000 .2896467 .5169713

15 | .7769277 .0492529 -3.98 0.000 .6861502 .8797151

17 | .6613766 .0258954 -10.56 0.000 .6125211 .714129

|

time |

2000 | 1.059312 .0385953 1.58 0.114 .9863047 1.137724

2002 | .9548254 .0382372 -1.15 0.248 .8827475 1.032789

2003 | .8420071 .0307652 -4.71 0.000 .7838168 .9045174

2004 | .8208775 .0331798 -4.88 0.000 .7583555 .8885541

2005 | .7424742 .0343665 -6.43 0.000 .678082 .8129811

2006 | .7233288 .0384215 -6.10 0.000 .6518113 .8026932

2007 | .7320786 .0390998 -5.84 0.000 .6593191 .8128675

2008 | .6584437 .0358997 -7.66 0.000 .5917107 .7327028

2009 | .5775605 .0335672 -9.45 0.000 .5153789 .6472445

2010 | .5660905 .0346236 -9.30 0.000 .5021392 .6381865

2011 | .5204132 .0287548 -11.82 0.000 .4669992 .5799365

2012 | .4545881 .0277119 -12.93 0.000 .4033931 .5122803

2013 | .4262722 .0309293 -11.75 0.000 .3697651 .4914148

2014 | .4585454 .0336888 -10.61 0.000 .3970504 .5295649

2015 | .4144281 .0318351 -11.47 0.000 .3565025 .4817658

|

\_cons | .0000997 4.55e-06 -201.87 0.000 .0000912 .000109

ln(hours) | 1 (exposure)

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

.

. quietly poisson dv `count\_lag\_1\_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 = 20471.57

Prob > chi2(6137) = 0.0000

Pearson goodness-of-fit = 24749.54

Prob > chi2(6137) = 0.0000

.

. pause "next"

.

. // negative binomial model

. glm dv `count\_lag\_1\_vars' `covariates' ib(freq).state ib(freq).time, family(nbinomial) link(log) vce(cl mineid) exposure(hours) iter(50) eform

Iteration 0: log pseudolikelihood = -17706.218

Iteration 1: log pseudolikelihood = -17464.949

Iteration 2: log pseudolikelihood = -17459.821

Iteration 3: log pseudolikelihood = -17459.813

Iteration 4: log pseudolikelihood = -17459.813

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,137

Scale parameter = 1

Deviance = 3831.656024 (1/df) Deviance = .6243533

Pearson = 5076.599055 (1/df) Pearson = .8272118

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

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

AIC = 5.621562

Log pseudolikelihood = -17459.8132 BIC = -49810.74

(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\_1lag | 1.071 .0534388 1.37 0.169 .9712208 1.181031

sp75\_1311\_1lag | .8546573 .0861667 -1.56 0.119 .7014128 1.041383

sp75\_1400\_1\_1lag | 1.027629 .1968917 0.14 0.887 .7059075 1.495977

sp75\_1404\_1\_1lag | .9086357 .1002518 -0.87 0.385 .7319389 1.127989

sp75\_1405\_1\_1lag | 1.165476 .08509 2.10 0.036 1.010085 1.344771

sp75\_500\_1\_1lag | .8737845 .1754484 -0.67 0.502 .589509 1.295145

sp75\_501\_1lag | 1.04479 .0546875 0.84 0.403 .9429191 1.157666

sp75\_506\_1\_1lag | 1.094973 .0461376 2.15 0.031 1.008178 1.18924

sp75\_507\_1\_1lag | .9924068 .0168083 -0.45 0.653 .9600039 1.025903

sp75\_508\_1\_1lag | .55438 .0933554 -3.50 0.000 .398537 .7711635

sp75\_512\_1\_1lag | .973379 .1035091 -0.25 0.800 .7902513 1.198944

sp75\_811\_1lag | 1.046484 .0366047 1.30 0.194 .9771442 1.120744

sp75\_1002\_1lag | .971063 .0192284 -1.48 0.138 .9340979 1.009491

sp75\_1003\_2\_1lag | .8933981 .051516 -1.95 0.051 .7979253 1.000294

sp75\_1322\_1lag | 1.400965 .3316269 1.42 0.154 .8809207 2.228014

sp75\_1719\_2\_1lag | .9181775 .0594345 -1.32 0.187 .8087748 1.042379

sp75\_212\_1lag | 1.090583 .0285982 3.31 0.001 1.035948 1.1481

sp75\_332\_1lag | .9117853 .0608051 -1.38 0.166 .8000694 1.0391

sp75\_501\_2\_1lag | .9209419 .0660925 -1.15 0.251 .8001009 1.060034

sp75\_502\_1lag | 1.160937 .1705186 1.02 0.310 .8705309 1.548222

sp75\_602\_1lag | 1.002251 .0263364 0.09 0.932 .9519395 1.055222

sp75\_812\_1lag | 1.133784 .1369159 1.04 0.298 .8948272 1.436553

sp75\_1003\_1lag | .9618889 .0143467 -2.61 0.009 .9341769 .990423

sp75\_153\_1lag | .8145756 .1605876 -1.04 0.298 .5535072 1.19878

sp75\_203\_1lag | 1.005595 .0085368 0.66 0.511 .9890012 1.022466

sp75\_213\_1lag | 1.134825 .1461049 0.98 0.326 .8817383 1.460556

sp75\_343\_1lag | 1.011759 .043513 0.27 0.786 .9299707 1.100741

sp75\_373\_1lag | .5868848 .3308749 -0.95 0.345 .1943842 1.771923

sp75\_503\_1lag | 1.00303 .0022534 1.35 0.178 .9986231 1.007456

sp75\_523\_1lag | .9201432 .017435 -4.39 0.000 .886598 .9549576

sp75\_523\_3\_1lag | .9867456 .00627 -2.10 0.036 .9745328 .9991114

sp75\_603\_1lag | 1.024519 .0337757 0.73 0.462 .9604132 1.092904

sp75\_703\_3\_1lag | 1.060989 .0464678 1.35 0.176 .9737132 1.156087

sp48\_24\_1lag | 1.096322 .0133378 7.56 0.000 1.07049 1.122778

sp48\_4\_1lag | 2.126846 .3901994 4.11 0.000 1.484469 3.047198

sp75\_1404\_1lag | .7262077 .1779047 -1.31 0.192 .4492991 1.173779

sp75\_1719\_4\_1lag | .9880194 .0206419 -0.58 0.564 .9483792 1.029316

sp75\_204\_1lag | 1.019594 .0116749 1.69 0.090 .9969661 1.042735

sp75\_334\_1lag | 1.009661 .0262649 0.37 0.712 .9594726 1.062474

sp75\_524\_1lag | .9362207 .1393732 -0.44 0.658 .699297 1.253415

sp75\_604\_1lag | 1.00956 .0039722 2.42 0.016 1.001804 1.017375

sp75\_703\_4\_1lag | .5756489 .0701842 -4.53 0.000 .4532916 .7310343

sp48\_25\_1lag | 1.008393 .0584566 0.14 0.885 .9000891 1.129728

sp48\_5\_1lag | 1.147995 .1017614 1.56 0.119 .964911 1.365818

sp75\_1315\_1lag | .8418037 .3259758 -0.44 0.657 .3940904 1.798149

sp75\_1403\_5\_1lag | .9833646 .0060004 -2.75 0.006 .971674 .9951958

sp75\_1405\_1lag | .9745612 .014739 -1.70 0.088 .9460972 1.003881

sp75\_155\_1lag | 1.020894 .2355517 0.09 0.929 .6495049 1.604646

sp75\_1725\_1lag | 1.005056 .0029513 1.72 0.086 .9992884 1.010858

sp75\_205\_1lag | 1.305447 .1277484 2.72 0.006 1.077612 1.581452

sp75\_215\_1lag | .9343757 .2851413 -0.22 0.824 .5137624 1.699342

sp75\_505\_1lag | .9662119 .0788317 -0.42 0.674 .8234252 1.133759

sp75\_605\_1lag | .9909698 .0130631 -0.69 0.491 .9656945 1.016907

sp48\_26\_1lag | 1.072598 .0483836 1.55 0.120 .9818394 1.171747

sp48\_6\_1lag | .9884839 .0410076 -0.28 0.780 .9112912 1.072215

sp75\_1316\_1lag | .7192573 .0967592 -2.45 0.014 .5525545 .9362535

sp75\_1403\_6\_1lag | .9979043 .0057632 -0.36 0.716 .9866722 1.009264

sp75\_156\_1lag | .7761625 .1008386 -1.95 0.051 .6016792 1.001245

sp75\_1906\_1lag | 1.117498 .034311 3.62 0.000 1.052233 1.186811

sp75\_1916\_1lag | 1.00568 .0302549 0.19 0.851 .9480957 1.066762

sp75\_606\_1lag | .9934355 .0069549 -0.94 0.347 .9798972 1.007161

sp75\_816\_1lag | 1.012515 .0231277 0.54 0.586 .9681856 1.058875

sp75\_906\_1lag | .7245268 .1028179 -2.27 0.023 .5486054 .9568609

sp48\_27\_1lag | 1.042237 .0665373 0.65 0.517 .9196552 1.181158

sp48\_7\_1lag | 1.047004 .0395719 1.22 0.224 .9722474 1.127508

sp75\_1403\_7\_1lag | .981655 .0260315 -0.70 0.485 .9319373 1.034025

sp75\_207\_1lag | 1.03876 .068625 0.58 0.565 .9126018 1.182359

sp75\_327\_1lag | .8856762 .1595532 -0.67 0.500 .6222033 1.260717

sp75\_337\_1lag | .9814221 .0293279 -0.63 0.530 .9255914 1.04062

sp75\_507\_1lag | 1.05519 .0385741 1.47 0.142 .9822308 1.133568

sp75\_607\_1lag | .9703928 .0243428 -1.20 0.231 .9238357 1.019296

sp75\_807\_1lag | 1.019385 .0071142 2.75 0.006 1.005536 1.033424

sp75\_817\_1lag | .87081 .1591797 -0.76 0.449 .6085946 1.246002

sp48\_28\_1lag | .9695371 .0615626 -0.49 0.626 .8560828 1.098027

sp48\_8\_1lag | 1.220116 .1163922 2.09 0.037 1.012049 1.470961

sp75\_1318\_1lag | .8365782 .3099473 -0.48 0.630 .4047076 1.729306

sp75\_1403\_8\_1lag | .9927376 .0057514 -1.26 0.208 .9815289 1.004074

sp75\_208\_1lag | .993596 .0126113 -0.51 0.613 .9691833 1.018624

sp75\_388\_1lag | 1.069889 .0565716 1.28 0.201 .9645629 1.186716

sp75\_209\_1lag | 1.027501 .0432166 0.65 0.519 .9461948 1.115793

sp75\_389\_1lag | .8395737 .1063055 -1.38 0.167 .6550599 1.07606

sp75\_509\_1lag | 1.130082 .0769595 1.80 0.073 .9888771 1.291449

sp75\_100\_1lag | 1.381965 .14962 2.99 0.003 1.11774 1.708651

sp75\_1400\_1lag | 1.034678 .0387932 0.91 0.363 .9613715 1.113575

sp75\_1403\_10\_1lag | 1.000883 .0097894 0.09 0.928 .9818791 1.020255

sp75\_160\_1lag | 1.116111 .3086483 0.40 0.691 .6491076 1.919101

sp75\_1720\_1lag | 1.057186 .0287779 2.04 0.041 1.00226 1.115121

sp75\_340\_1lag | .9967098 .0079272 -0.41 0.679 .9812931 1.012369

sp75\_500\_1lag | 1.010904 .0430271 0.25 0.799 .9299943 1.098853

sp75\_510\_1lag | .9224161 .1357247 -0.55 0.583 .6913225 1.230759

sp75\_810\_1lag | 1.037534 .0318009 1.20 0.229 .9770407 1.101773

mine\_time | 1.014204 .00611 2.34 0.019 1.002299 1.02625

onsite\_insp\_hours | .999818 .0000372 -4.89 0.000 .9997451 .9998909

|

state |

1 | .8232023 .1135288 -1.41 0.158 .6282266 1.07869

2 | .9949388 .0496034 -0.10 0.919 .9023169 1.097068

3 | .6422847 .0831827 -3.42 0.001 .4982966 .8278797

4 | .9556387 .0683874 -0.63 0.526 .8305774 1.099531

5 | .7843663 .0619322 -3.08 0.002 .6719077 .9156475

6 | .7501273 .0359766 -5.99 0.000 .6828272 .8240605

7 | 1.039313 .2262583 0.18 0.859 .6783279 1.592402

8 | .4546295 .0242655 -14.77 0.000 .4094732 .5047656

9 | .5275722 .025518 -13.22 0.000 .4798553 .5800341

10 | .8395412 .0967617 -1.52 0.129 .6697865 1.052319

11 | 1.460287 .2614458 2.11 0.034 1.028114 2.074125

12 | .991423 .0746486 -0.11 0.909 .855398 1.149079

13 | 1.525003 .1695642 3.80 0.000 1.226383 1.896337

14 | .4026235 .0712216 -5.14 0.000 .2846602 .5694708

15 | .7107619 .0400057 -6.07 0.000 .6365224 .7936601

17 | .59762 .0296779 -10.37 0.000 .5421935 .6587125

|

time |

2000 | 1.037906 .0584123 0.66 0.509 .9295078 1.158945

2002 | .9125571 .0552501 -1.51 0.131 .8104472 1.027532

2003 | .8567795 .0601829 -2.20 0.028 .7465829 .9832413

2004 | .7777078 .0478479 -4.09 0.000 .6893613 .8773765

2005 | .6934526 .0428883 -5.92 0.000 .6142881 .7828191

2006 | .6791348 .0436165 -6.02 0.000 .5988096 .7702349

2007 | .6515125 .0447955 -6.23 0.000 .5693736 .7455009

2008 | .5826252 .0423441 -7.43 0.000 .5052725 .6718201

2009 | .5325143 .0394466 -8.51 0.000 .4605508 .6157223

2010 | .5295397 .0376749 -8.94 0.000 .4606155 .6087773

2011 | .4966974 .0357428 -9.72 0.000 .4313587 .571933

2012 | .4415052 .0360667 -10.01 0.000 .3761845 .5181682

2013 | .4382725 .0379522 -9.53 0.000 .3698575 .5193427

2014 | .4209572 .0356667 -10.21 0.000 .3565477 .497002

2015 | .3886228 .0331904 -11.07 0.000 .3287239 .4594364

|

\_cons | .0001121 7.56e-06 -134.76 0.000 .0000982 .0001279

ln(hours) | 1 (exposure)

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

.

. pause "next"

.

. eststo clear

. eststo: nbreg dv `count\_lag\_1\_vars' `covariates' ib(freq).state ib(freq).time, vce(cl mineid) exposure(hours) iter(50) irr

Fitting Poisson model:

Iteration 0: log pseudolikelihood = -247633.5

Iteration 1: log pseudolikelihood = -93281.23

Iteration 2: log pseudolikelihood = -52943.469

Iteration 3: log pseudolikelihood = -24382.526

Iteration 4: log pseudolikelihood = -20590.679

Iteration 5: log pseudolikelihood = -20026.006

Iteration 6: log pseudolikelihood = -19999.956

Iteration 7: log pseudolikelihood = -19999.774

Iteration 8: log pseudolikelihood = -19999.774

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 = -16780.852

Iteration 1: log pseudolikelihood = -16629.052

Iteration 2: log pseudolikelihood = -16615.672

Iteration 3: log pseudolikelihood = -16615.622

Iteration 4: log pseudolikelihood = -16615.622

Negative binomial regression Number of obs = 6,253

Wald chi2(115) = .

Dispersion = mean Prob > chi2 = .

Log pseudolikelihood = -16615.622 Pseudo R2 = 0.0445

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

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

| Robust

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

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

sp48\_11\_1lag | 1.045547 .0401526 1.16 0.246 .9697378 1.127282

sp75\_1311\_1lag | .8862653 .0805807 -1.33 0.184 .7416024 1.059147

sp75\_1400\_1\_1lag | 1.043534 .2067159 0.22 0.830 .7077671 1.53859

sp75\_1404\_1\_1lag | .9390401 .0859356 -0.69 0.492 .7848507 1.123521

sp75\_1405\_1\_1lag | 1.184644 .0723944 2.77 0.006 1.050922 1.335382

sp75\_500\_1\_1lag | .8466278 .1718441 -0.82 0.412 .5687482 1.260274

sp75\_501\_1lag | 1.070746 .051842 1.41 0.158 .9738099 1.177332

sp75\_506\_1\_1lag | 1.087974 .043495 2.11 0.035 1.005979 1.176651

sp75\_507\_1\_1lag | 1.000366 .0163601 0.02 0.982 .9688094 1.032951

sp75\_508\_1\_1lag | .5422495 .0776862 -4.27 0.000 .4094967 .7180387

sp75\_512\_1\_1lag | .9941127 .0992757 -0.06 0.953 .8173942 1.209037

sp75\_811\_1lag | 1.036724 .0329135 1.14 0.256 .974181 1.103283

sp75\_1002\_1lag | .9791181 .0163538 -1.26 0.206 .9475842 1.011701

sp75\_1003\_2\_1lag | .9174078 .04804 -1.65 0.100 .8279217 1.016566

sp75\_1322\_1lag | 1.564008 .3268708 2.14 0.032 1.038345 2.355789

sp75\_1719\_2\_1lag | .923376 .0536292 -1.37 0.170 .8240266 1.034704

sp75\_212\_1lag | 1.081786 .0262059 3.25 0.001 1.031624 1.134387

sp75\_332\_1lag | .9373396 .0591117 -1.03 0.305 .8283568 1.060661

sp75\_501\_2\_1lag | .9155769 .0638815 -1.26 0.206 .7985551 1.049747

sp75\_502\_1lag | 1.090653 .1329953 0.71 0.477 .8587966 1.385106

sp75\_602\_1lag | .9987465 .0231332 -0.05 0.957 .9544201 1.045132

sp75\_812\_1lag | 1.131654 .1315425 1.06 0.287 .9010955 1.421205

sp75\_1003\_1lag | .9649711 .0134724 -2.55 0.011 .9389238 .9917411

sp75\_153\_1lag | .8635746 .1595605 -0.79 0.427 .601209 1.240436

sp75\_203\_1lag | 1.007524 .0081213 0.93 0.352 .9917315 1.023568

sp75\_213\_1lag | 1.138593 .0982261 1.50 0.132 .9614693 1.348346

sp75\_343\_1lag | 1.024204 .0424072 0.58 0.564 .9443708 1.110787

sp75\_373\_1lag | .6949926 .3227156 -0.78 0.433 .2797241 1.726754

sp75\_503\_1lag | 1.002928 .0021015 1.40 0.163 .9988176 1.007055

sp75\_523\_1lag | .9267504 .0158192 -4.46 0.000 .8962583 .9582799

sp75\_523\_3\_1lag | .9884003 .0057784 -2.00 0.046 .9771396 .9997909

sp75\_603\_1lag | 1.031947 .0301894 1.07 0.282 .9744412 1.092846

sp75\_703\_3\_1lag | 1.062397 .0420408 1.53 0.126 .9831132 1.148075

sp48\_24\_1lag | 1.108397 .0113815 10.02 0.000 1.086312 1.13093

sp48\_4\_1lag | 2.177961 .3553986 4.77 0.000 1.581799 2.998808

sp75\_1404\_1lag | .7872607 .1598439 -1.18 0.239 .5288009 1.172047

sp75\_1719\_4\_1lag | 1.00165 .0200933 0.08 0.934 .9630321 1.041817

sp75\_204\_1lag | 1.019399 .010834 1.81 0.071 .998384 1.040856

sp75\_334\_1lag | 1.011269 .0226894 0.50 0.617 .9677624 1.056732

sp75\_524\_1lag | 1.000773 .134924 0.01 0.995 .7683814 1.30345

sp75\_604\_1lag | 1.010335 .0036419 2.85 0.004 1.003222 1.017498

sp75\_703\_4\_1lag | .5693692 .0665635 -4.82 0.000 .4527747 .715988

sp48\_25\_1lag | 1.001763 .0533791 0.03 0.974 .9024203 1.112043

sp48\_5\_1lag | 1.09725 .0683692 1.49 0.136 .9711078 1.239777

sp75\_1315\_1lag | .9562756 .3212216 -0.13 0.894 .4950588 1.847181

sp75\_1403\_5\_1lag | .9855392 .0054753 -2.62 0.009 .9748661 .9963292

sp75\_1405\_1lag | .9774634 .0139392 -1.60 0.110 .9505214 1.005169

sp75\_155\_1lag | 1.062564 .240045 0.27 0.788 .6824314 1.65444

sp75\_1725\_1lag | 1.003504 .002553 1.38 0.169 .998513 1.00852

sp75\_205\_1lag | 1.31415 .1280212 2.80 0.005 1.085733 1.590621

sp75\_215\_1lag | 1.012111 .2586563 0.05 0.962 .6133297 1.670176

sp75\_505\_1lag | .9792551 .0756967 -0.27 0.786 .8415844 1.139447

sp75\_605\_1lag | .9909766 .0117902 -0.76 0.446 .9681356 1.014356

sp48\_26\_1lag | 1.078258 .0431463 1.88 0.060 .9969237 1.166228

sp48\_6\_1lag | 1.00501 .0375457 0.13 0.894 .9340516 1.081359

sp75\_1316\_1lag | .7624126 .1014771 -2.04 0.042 .5873475 .9896577

sp75\_1403\_6\_1lag | .9980022 .0052812 -0.38 0.705 .9877047 1.008407

sp75\_156\_1lag | .7764702 .088503 -2.22 0.026 .6210174 .9708358

sp75\_1906\_1lag | 1.11923 .0321699 3.92 0.000 1.057921 1.184092

sp75\_1916\_1lag | 1.010496 .0285772 0.37 0.712 .9560098 1.068088

sp75\_606\_1lag | .9951237 .0065786 -0.74 0.460 .9823131 1.008101

sp75\_816\_1lag | 1.010925 .0209777 0.52 0.601 .9706343 1.052888

sp75\_906\_1lag | .7249166 .0944788 -2.47 0.014 .5615009 .9358919

sp48\_27\_1lag | 1.032043 .0624946 0.52 0.602 .9165454 1.162095

sp48\_7\_1lag | 1.032967 .0349199 0.96 0.337 .9667433 1.103727

sp75\_1403\_7\_1lag | .9875388 .0240607 -0.51 0.607 .9414889 1.035841

sp75\_207\_1lag | 1.060874 .0664295 0.94 0.345 .9383473 1.199401

sp75\_327\_1lag | .8932295 .1639042 -0.62 0.538 .6234057 1.279839

sp75\_337\_1lag | .974169 .025808 -0.99 0.323 .924877 1.026088

sp75\_507\_1lag | 1.051232 .0344913 1.52 0.128 .9857582 1.121055

sp75\_607\_1lag | .9752179 .0236918 -1.03 0.302 .929871 1.022776

sp75\_807\_1lag | 1.017023 .0067261 2.55 0.011 1.003925 1.030291

sp75\_817\_1lag | .8834941 .1451237 -0.75 0.451 .6403013 1.219054

sp48\_28\_1lag | .9620162 .0642732 -0.58 0.562 .8439424 1.096609

sp48\_8\_1lag | 1.148236 .0916883 1.73 0.083 .981887 1.342768

sp75\_1318\_1lag | .9421697 .257102 -0.22 0.827 .5518877 1.60845

sp75\_1403\_8\_1lag | .9912362 .0051188 -1.70 0.088 .9812542 1.00132

sp75\_208\_1lag | 1.000251 .0116488 0.02 0.983 .9776782 1.023345

sp75\_388\_1lag | 1.047952 .0499882 0.98 0.326 .9544179 1.150654

sp75\_209\_1lag | 1.028638 .0401309 0.72 0.469 .9529147 1.110378

sp75\_389\_1lag | .9079426 .107795 -0.81 0.416 .7194489 1.145821

sp75\_509\_1lag | 1.145418 .0727853 2.14 0.033 1.011288 1.297339

sp75\_100\_1lag | 1.328047 .1329094 2.83 0.005 1.091506 1.615849

sp75\_1400\_1lag | 1.025008 .030773 0.82 0.411 .9664345 1.087132

sp75\_1403\_10\_1lag | .9989623 .00854 -0.12 0.903 .9823637 1.015841

sp75\_160\_1lag | 1.139533 .3229301 0.46 0.645 .6538925 1.985854

sp75\_1720\_1lag | 1.057723 .0270035 2.20 0.028 1.006099 1.111995

sp75\_340\_1lag | .9917511 .0070422 -1.17 0.243 .9780443 1.00565

sp75\_500\_1lag | 1.004598 .0389379 0.12 0.906 .9311083 1.083889

sp75\_510\_1lag | .9297542 .1255747 -0.54 0.590 .7135147 1.211528

sp75\_810\_1lag | 1.048527 .0269624 1.84 0.065 .9969916 1.102727

mine\_time | 1.011921 .0055252 2.17 0.030 1.00115 1.022809

onsite\_insp\_hours | .999825 .0000352 -4.97 0.000 .9997559 .9998941

|

state |

1 | .852233 .1039159 -1.31 0.190 .6710705 1.082302

2 | 1.128821 .0536829 2.55 0.011 1.028359 1.239097

3 | .6307686 .08045 -3.61 0.000 .4912533 .8099061

4 | .9526901 .0619641 -0.75 0.456 .838665 1.082218

5 | .8003629 .0617363 -2.89 0.004 .6880646 .9309893

6 | .7676133 .0338745 -5.99 0.000 .7040107 .8369619

7 | 1.02477 .2062031 0.12 0.903 .6907937 1.520212

8 | .4645969 .024729 -14.40 0.000 .4185714 .5156833

9 | .5599477 .02479 -13.10 0.000 .5134086 .6107055

10 | .8780447 .0884382 -1.29 0.197 .7207458 1.069673

11 | 1.48162 .2518607 2.31 0.021 1.061796 2.067439

12 | 1.056813 .0709853 0.82 0.411 .9264533 1.205515

13 | 1.493121 .1498403 3.99 0.000 1.226518 1.817676

14 | .3971415 .0695514 -5.27 0.000 .2817568 .5597785

15 | .735163 .0383894 -5.89 0.000 .6636434 .8143901

17 | .6250487 .0281638 -10.43 0.000 .5722159 .6827596

|

time |

2000 | 1.059057 .0467145 1.30 0.193 .9713439 1.15469

2002 | .9400334 .046417 -1.25 0.210 .8533214 1.035557

2003 | .8524657 .0447383 -3.04 0.002 .7691393 .9448196

2004 | .8037836 .0390901 -4.49 0.000 .7307066 .884169

2005 | .7215872 .0364737 -6.46 0.000 .6535272 .7967353

2006 | .7055877 .0367603 -6.69 0.000 .6370952 .7814436

2007 | .6904541 .0393667 -6.50 0.000 .6174518 .7720876

2008 | .6055414 .0358567 -8.47 0.000 .5391884 .6800598

2009 | .5432503 .0330646 -10.03 0.000 .482161 .6120795

2010 | .542417 .0329384 -10.07 0.000 .4815527 .610974

2011 | .5066621 .0304951 -11.30 0.000 .4502836 .5700995

2012 | .4419696 .0295849 -12.20 0.000 .3876271 .5039305

2013 | .4269735 .030322 -11.98 0.000 .3714941 .4907382

2014 | .4272972 .0312178 -11.64 0.000 .3702903 .4930804

2015 | .402347 .030155 -12.15 0.000 .3473802 .4660113

|

\_cons | .0001075 5.68e-06 -173.01 0.000 .0000969 .0001192

ln(hours) | 1 (exposure)

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

/lnalpha | -1.263144 .0586041 -1.378006 -1.148282

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

alpha | .2827636 .0165711 .2520807 .3171811

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

(est1 stored)

. esttab using `"`directory'Model.`injury\_label'.`time\_label'.`violation\_level\_label'.C.V.2.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.2.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.2.csv)

. est store nbin

.

. pause "next"

.

. // test for over-dispersion

. lrtest pois nbin, stats force

Likelihood-ratio test LR chi2(1) = 6768.30

(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 -19999.77 116 40231.55 41013.48

nbin | 6,253 -17389.65 -16615.62 117 33465.24 34253.92

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

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

.

. pause "next"

.

. // final model + diagnostics/assessment

. quietly nbreg dv `count\_lag\_1\_vars' `covariates' ib(freq).state ib(freq).time, vce(cl mineid) exposure(hours) iter(50) irr

. predict cv2\_yhat

(option n assumed; predicted number of events)

. gen cv2\_res = dv - cv2\_yhat

.

. summ dv cv2\_yhat

Variable | Obs Mean Std. Dev. Min Max

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

dv | 6,253 9.976651 14.85334 0 200

cv2\_yhat | 6,253 10.40401 15.07596 .0033387 286.2152

. /\*

> pause "next"

>

> scatter dv cv2\_yhat

>

> pause "next"

>

> scatter cv2\_res dv

>

> pause "next"

>

> scatter cv2\_res cv2\_yhat

> \*/

. pause "complete: C.V.2"

.