. // Model C.PP.4

.

. // poisson model

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

note: sp48\_24\_pp\_c\_lag\_all omitted because of collinearity

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

Iteration 0: log pseudolikelihood = -22433.915

Iteration 1: log pseudolikelihood = -20038.912

Iteration 2: log pseudolikelihood = -20026.231

Iteration 3: log pseudolikelihood = -20026.221

Iteration 4: log pseudolikelihood = -20026.221

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,141

Scale parameter = 1

Deviance = 20524.46212 (1/df) Deviance = 3.342202

Pearson = 24712.81051 (1/df) Pearson = 4.024232

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

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

AIC = 6.441139

Log pseudolikelihood = -20026.22116 BIC = -33152.89

(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\_pp\_c\_lag\_all | 1.000076 .0001258 0.61 0.545 .9998297 1.000323

sp48\_24\_pp\_c\_lag\_all | 1 (omitted)

sp48\_25\_pp\_c\_lag\_all | .9992817 .0002597 -2.76 0.006 .9987728 .9997908

sp48\_26\_pp\_c\_lag\_all | 1.000287 .0003082 0.93 0.352 .9996831 1.000891

sp48\_27\_pp\_c\_lag\_all | 1.000019 .0001349 0.14 0.887 .9997547 1.000284

sp48\_28\_pp\_c\_lag\_all | .9995041 .0002131 -2.33 0.020 .9990865 .9999219

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

sp48\_5\_pp\_c\_lag\_all | 1.000132 .0004135 0.32 0.750 .9993218 1.000943

sp48\_6\_pp\_c\_lag\_all | 1.000103 .0001168 0.88 0.377 .9998743 1.000332

sp48\_7\_pp\_c\_lag\_all | .9998256 .0001035 -1.68 0.092 .9996227 1.000029

sp48\_8\_pp\_c\_lag\_all | 1.000056 .0002043 0.27 0.784 .9996555 1.000456

sp75\_100\_pp\_c\_lag\_all | 1.000629 .0003479 1.81 0.071 .9999472 1.001311

sp75\_1002\_pp\_c\_lag\_all | 1.000138 .0000412 3.36 0.001 1.000058 1.000219

sp75\_1003\_pp\_c\_lag\_all | 1.000037 .00002 1.84 0.066 .9999976 1.000076

sp75\_1003\_2\_pp\_c\_lag\_all | .9999675 .0001534 -0.21 0.832 .9996669 1.000268

sp75\_1311\_pp\_c\_lag\_all | 1.000002 .0002119 0.01 0.991 .999587 1.000418

sp75\_1315\_pp\_c\_lag\_all | .9991674 .0015467 -0.54 0.591 .9961406 1.002203

sp75\_1316\_pp\_c\_lag\_all | .999668 .0002362 -1.41 0.160 .9992052 1.000131

sp75\_1318\_pp\_c\_lag\_all | .9942585 .0004797 -11.93 0.000 .9933187 .9951992

sp75\_1400\_pp\_c\_lag\_all | 1.000122 .0001001 1.22 0.223 .9999258 1.000318

sp75\_1400\_1\_pp\_c\_lag\_all | .999449 .0003997 -1.38 0.168 .998666 1.000233

sp75\_1403\_10\_pp\_c\_lag\_all | 1.000066 .0000248 2.67 0.008 1.000018 1.000115

sp75\_1403\_5\_pp\_c\_lag\_all | .9999827 .0000112 -1.55 0.122 .9999609 1.000005

sp75\_1403\_6\_pp\_c\_lag\_all | 1.00004 .0000132 3.01 0.003 1.000014 1.000065

sp75\_1403\_7\_pp\_c\_lag\_all | .9999054 .0000829 -1.14 0.254 .9997429 1.000068

sp75\_1403\_8\_pp\_c\_lag\_all | .999958 .000021 -2.00 0.046 .9999168 .9999992

sp75\_1404\_pp\_c\_lag\_all | .9997333 .0003973 -0.67 0.502 .9989549 1.000512

sp75\_1404\_1\_pp\_c\_lag\_all | .9981826 .0005079 -3.58 0.000 .9971876 .9991785

sp75\_1405\_pp\_c\_lag\_all | .9999522 .0000348 -1.38 0.169 .999884 1.00002

sp75\_1405\_1\_pp\_c\_lag\_all | 1.000405 .0005935 0.68 0.495 .9992422 1.001569

sp75\_153\_pp\_c\_lag\_all | 1.000928 .0005318 1.75 0.081 .9998867 1.001971

sp75\_156\_pp\_c\_lag\_all | .9981608 .0009491 -1.94 0.053 .9963023 1.000023

sp75\_160\_pp\_c\_lag\_all | 1.003557 .0022056 1.62 0.106 .9992439 1.00789

sp75\_1719\_2\_pp\_c\_lag\_all | .9998896 .0003771 -0.29 0.770 .9991508 1.000629

sp75\_1719\_4\_pp\_c\_lag\_all | 1.000011 .0000689 0.16 0.876 .9998757 1.000146

sp75\_1720\_pp\_c\_lag\_all | 1.000094 .0000759 1.24 0.216 .9999451 1.000243

sp75\_1725\_pp\_c\_lag\_all | .9999914 5.08e-06 -1.69 0.090 .9999814 1.000001

sp75\_1906\_pp\_c\_lag\_all | 1.000048 .0000884 0.54 0.590 .9998743 1.000221

sp75\_1916\_pp\_c\_lag\_all | .9999414 .0001149 -0.51 0.610 .9997162 1.000167

sp75\_203\_pp\_c\_lag\_all | 1.000001 .0000203 0.05 0.959 .9999612 1.000041

sp75\_204\_pp\_c\_lag\_all | 1.000053 .0000311 1.70 0.089 .999992 1.000114

sp75\_205\_pp\_c\_lag\_all | 1.000982 .0008547 1.15 0.250 .9993086 1.002659

sp75\_207\_pp\_c\_lag\_all | 1.000708 .0003891 1.82 0.069 .9999454 1.001471

sp75\_208\_pp\_c\_lag\_all | 1.000055 .0000315 1.74 0.081 .9999932 1.000117

sp75\_209\_pp\_c\_lag\_all | .9999079 .0001534 -0.60 0.548 .9996072 1.000209

sp75\_212\_pp\_c\_lag\_all | 1.000091 .000066 1.37 0.169 .9999613 1.00022

sp75\_213\_pp\_c\_lag\_all | 1.000717 .0002566 2.79 0.005 1.000214 1.00122

sp75\_215\_pp\_c\_lag\_all | .9998519 .0006851 -0.22 0.829 .99851 1.001196

sp75\_332\_pp\_c\_lag\_all | .9993265 .000221 -3.05 0.002 .9988935 .9997597

sp75\_334\_pp\_c\_lag\_all | .999829 .0000827 -2.07 0.039 .999667 .9999911

sp75\_337\_pp\_c\_lag\_all | .9998772 .000065 -1.89 0.059 .9997497 1.000005

sp75\_340\_pp\_c\_lag\_all | .9999568 .0000145 -2.97 0.003 .9999283 .9999853

sp75\_343\_pp\_c\_lag\_all | 1.000006 .0001795 0.04 0.972 .9996547 1.000358

sp75\_373\_pp\_c\_lag\_all | 1.010205 .0006969 14.72 0.000 1.00884 1.011572

sp75\_388\_pp\_c\_lag\_all | .9998152 .0001776 -1.04 0.298 .9994671 1.000163

sp75\_389\_pp\_c\_lag\_all | .9995309 .000433 -1.08 0.279 .9986827 1.00038

sp75\_500\_pp\_c\_lag\_all | 1.000107 .0001664 0.65 0.519 .9997814 1.000434

sp75\_500\_1\_pp\_c\_lag\_all | .9980152 .0008383 -2.37 0.018 .9963735 .9996596

sp75\_501\_pp\_c\_lag\_all | 1.000492 .0003069 1.60 0.109 .9998904 1.001093

sp75\_501\_2\_pp\_c\_lag\_all | .9990647 .0004086 -2.29 0.022 .9982641 .9998659

sp75\_502\_pp\_c\_lag\_all | 1.001332 .0004848 2.75 0.006 1.000382 1.002282

sp75\_503\_pp\_c\_lag\_all | .999994 4.41e-06 -1.36 0.175 .9999854 1.000003

sp75\_505\_pp\_c\_lag\_all | 1.000331 .0003168 1.04 0.296 .9997102 1.000952

sp75\_506\_1\_pp\_c\_lag\_all | 1.000802 .000164 4.89 0.000 1.00048 1.001123

sp75\_507\_pp\_c\_lag\_all | 1.00004 .0000977 0.41 0.679 .999849 1.000232

sp75\_507\_1\_pp\_c\_lag\_all | 1.000013 .0000427 0.31 0.756 .9999295 1.000097

sp75\_508\_1\_pp\_c\_lag\_all | .9983398 .000447 -3.71 0.000 .9974641 .9992163

sp75\_509\_pp\_c\_lag\_all | 1.000223 .0003304 0.67 0.500 .9995756 1.000871

sp75\_510\_pp\_c\_lag\_all | 1.002992 .0021539 1.39 0.164 .998779 1.007222

sp75\_512\_1\_pp\_c\_lag\_all | 1.000151 .0006973 0.22 0.829 .9987849 1.001518

sp75\_523\_pp\_c\_lag\_all | .9999765 .0000609 -0.39 0.699 .9998571 1.000096

sp75\_523\_3\_pp\_c\_lag\_all | .9999995 .0000166 -0.03 0.976 .9999671 1.000032

sp75\_524\_pp\_c\_lag\_all | 1.000702 .0003374 2.08 0.037 1.000041 1.001364

sp75\_602\_pp\_c\_lag\_all | .9999439 .0000927 -0.60 0.545 .9997622 1.000126

sp75\_603\_pp\_c\_lag\_all | .9997799 .0001335 -1.65 0.099 .9995183 1.000042

sp75\_604\_pp\_c\_lag\_all | .9999821 6.51e-06 -2.75 0.006 .9999694 .9999949

sp75\_605\_pp\_c\_lag\_all | 1.000026 .0000475 0.56 0.577 .9999334 1.000119

sp75\_606\_pp\_c\_lag\_all | 1.000017 .0000133 1.26 0.207 .9999907 1.000043

sp75\_607\_pp\_c\_lag\_all | .9998854 .0001084 -1.06 0.290 .999673 1.000098

sp75\_703\_3\_pp\_c\_lag\_all | 1.000629 .0002512 2.51 0.012 1.000137 1.001122

sp75\_703\_4\_pp\_c\_lag\_all | 1.002204 .0006725 3.28 0.001 1.000887 1.003523

sp75\_807\_pp\_c\_lag\_all | 1.000029 .000015 1.93 0.053 .9999996 1.000058

sp75\_810\_pp\_c\_lag\_all | 1.000103 .0001014 1.02 0.309 .9999044 1.000302

sp75\_811\_pp\_c\_lag\_all | 1.000015 .0000802 0.19 0.849 .9998581 1.000172

sp75\_812\_pp\_c\_lag\_all | .9995753 .000345 -1.23 0.218 .9988993 1.000252

sp75\_816\_pp\_c\_lag\_all | 1.000021 .0000617 0.33 0.738 .9998996 1.000142

sp75\_817\_pp\_c\_lag\_all | .9995446 .0004396 -1.04 0.300 .9986835 1.000407

sp75\_906\_pp\_c\_lag\_all | .9978965 .0009443 -2.23 0.026 .9960475 .9997489

mine\_time | 1.012549 .0063 2.00 0.045 1.000277 1.024973

onsite\_insp\_hours | .9999245 .0000385 -1.96 0.050 .999849 1

|

state |

1 | .8609225 .0802167 -1.61 0.108 .7172212 1.033416

2 | 1.570527 .0775569 9.14 0.000 1.425643 1.730135

3 | .625267 .0599965 -4.89 0.000 .5180716 .7546424

4 | 1.111845 .0884372 1.33 0.183 .9513471 1.299421

5 | 1.039851 .1741356 0.23 0.815 .7489059 1.443827

6 | .912028 .0493481 -1.70 0.089 .8202596 1.014063

7 | .9788486 .1732184 -0.12 0.904 .6919676 1.384667

8 | .4516597 .0219195 -16.38 0.000 .4106783 .4967307

9 | .7189135 .0580078 -4.09 0.000 .6137545 .84209

10 | .9918083 .0783404 -0.10 0.917 .8495589 1.157876

11 | 2.08956 .3275035 4.70 0.000 1.536892 2.840969

12 | .9432747 .0893617 -0.62 0.538 .783428 1.135736

13 | 1.472622 .1369455 4.16 0.000 1.227254 1.767047

14 | .3842511 .062659 -5.87 0.000 .2791332 .5289551

15 | .7919997 .0454581 -4.06 0.000 .7077322 .8863007

17 | .7138847 .1076116 -2.24 0.025 .5312724 .9592656

|

time |

2000 | 1.047193 .0414103 1.17 0.244 .9690963 1.131584

2002 | .9540731 .0368917 -1.22 0.224 .8844386 1.02919

2003 | .8413389 .037353 -3.89 0.000 .7712233 .9178291

2004 | .8125163 .0385485 -4.38 0.000 .740369 .8916943

2005 | .7634426 .0384828 -5.35 0.000 .6916238 .8427193

2006 | .7436535 .0400308 -5.50 0.000 .6691917 .8264008

2007 | .7449397 .0450317 -4.87 0.000 .6617073 .8386415

2008 | .6908902 .041591 -6.14 0.000 .6139986 .7774109

2009 | .6106193 .0386259 -7.80 0.000 .539419 .6912178

2010 | .582474 .0386135 -8.15 0.000 .5115035 .6632917

2011 | .5294537 .0326406 -10.31 0.000 .4691932 .5974536

2012 | .4681143 .0300643 -11.82 0.000 .4127472 .5309085

2013 | .4398621 .0351181 -10.29 0.000 .376147 .5143699

2014 | .4423106 .0355454 -10.15 0.000 .3778524 .5177647

2015 | .4080773 .034272 -10.67 0.000 .3461427 .4810939

|

\_cons | .0000956 5.00e-06 -176.84 0.000 .0000863 .0001059

ln(hours) | 1 (exposure)

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.

. quietly poisson dv `pp\_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 = 20524.46

Prob > chi2(6141) = 0.0000

Pearson goodness-of-fit = 24712.81

Prob > chi2(6141) = 0.0000

.

. pause "next"

.

. // negative binomial model

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

note: sp48\_24\_pp\_c\_lag\_all omitted because of collinearity

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

Iteration 0: log pseudolikelihood = -17711.829

Iteration 1: log pseudolikelihood = -17445.085

Iteration 2: log pseudolikelihood = -17437.868

Iteration 3: log pseudolikelihood = -17437.837

Iteration 4: log pseudolikelihood = -17437.837

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,141

Scale parameter = 1

Deviance = 3787.703089 (1/df) Deviance = .6167893

Pearson = 4750.091153 (1/df) Pearson = .7735045

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

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

AIC = 5.613253

Log pseudolikelihood = -17437.83674 BIC = -49889.65

(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\_pp\_c\_lag\_all | 1.000268 .0001737 1.55 0.122 .999928 1.000609

sp48\_24\_pp\_c\_lag\_all | 1 (omitted)

sp48\_25\_pp\_c\_lag\_all | .9992645 .0002392 -3.07 0.002 .9987958 .9997335

sp48\_26\_pp\_c\_lag\_all | 1.000142 .0003372 0.42 0.674 .999481 1.000803

sp48\_27\_pp\_c\_lag\_all | 1.000004 .0001805 0.02 0.981 .9996506 1.000358

sp48\_28\_pp\_c\_lag\_all | .9996851 .0002259 -1.39 0.163 .9992426 1.000128

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

sp48\_5\_pp\_c\_lag\_all | 1.000462 .0005009 0.92 0.356 .9994809 1.001444

sp48\_6\_pp\_c\_lag\_all | 1.00003 .0001202 0.25 0.803 .9997945 1.000266

sp48\_7\_pp\_c\_lag\_all | .999661 .0001441 -2.35 0.019 .9993785 .9999435

sp48\_8\_pp\_c\_lag\_all | 1.000294 .0003277 0.90 0.370 .999652 1.000936

sp75\_100\_pp\_c\_lag\_all | 1.000739 .0004387 1.69 0.092 .99988 1.0016

sp75\_1002\_pp\_c\_lag\_all | 1.000116 .0000786 1.47 0.141 .9999617 1.00027

sp75\_1003\_pp\_c\_lag\_all | 1.000055 .0000289 1.91 0.057 .9999985 1.000112

sp75\_1003\_2\_pp\_c\_lag\_all | .9999313 .0002074 -0.33 0.740 .9995249 1.000338

sp75\_1311\_pp\_c\_lag\_all | 1.000488 .000269 1.82 0.070 .9999611 1.001015

sp75\_1315\_pp\_c\_lag\_all | .9966465 .0027002 -1.24 0.215 .9913682 1.001953

sp75\_1316\_pp\_c\_lag\_all | .9994199 .0003403 -1.70 0.088 .9987531 1.000087

sp75\_1318\_pp\_c\_lag\_all | .9946876 .0004947 -10.71 0.000 .9937185 .9956577

sp75\_1400\_pp\_c\_lag\_all | 1.000081 .0001158 0.70 0.485 .9998538 1.000308

sp75\_1400\_1\_pp\_c\_lag\_all | .999255 .000496 -1.50 0.133 .9982833 1.000228

sp75\_1403\_10\_pp\_c\_lag\_all | 1.000141 .000034 4.16 0.000 1.000075 1.000208

sp75\_1403\_5\_pp\_c\_lag\_all | .9999669 .0000127 -2.61 0.009 .999942 .9999917

sp75\_1403\_6\_pp\_c\_lag\_all | 1.000035 .0000157 2.23 0.026 1.000004 1.000066

sp75\_1403\_7\_pp\_c\_lag\_all | .9998468 .000112 -1.37 0.171 .9996273 1.000066

sp75\_1403\_8\_pp\_c\_lag\_all | .9999829 .0000218 -0.78 0.433 .9999401 1.000026

sp75\_1404\_pp\_c\_lag\_all | 1.000272 .0007936 0.34 0.732 .9987176 1.001828

sp75\_1404\_1\_pp\_c\_lag\_all | .9972598 .0006958 -3.93 0.000 .995897 .9986245

sp75\_1405\_pp\_c\_lag\_all | .9999669 .0000451 -0.73 0.463 .9998784 1.000055

sp75\_1405\_1\_pp\_c\_lag\_all | .9999648 .0007699 -0.05 0.964 .998457 1.001475

sp75\_153\_pp\_c\_lag\_all | 1.000573 .0007119 0.81 0.421 .9991787 1.001969

sp75\_156\_pp\_c\_lag\_all | .9971053 .0008425 -3.43 0.001 .9954555 .9987578

sp75\_160\_pp\_c\_lag\_all | 1.004633 .0020149 2.30 0.021 1.000692 1.00859

sp75\_1719\_2\_pp\_c\_lag\_all | 1.000376 .0006546 0.57 0.565 .9990942 1.00166

sp75\_1719\_4\_pp\_c\_lag\_all | .9999872 .0001254 -0.10 0.919 .9997414 1.000233

sp75\_1720\_pp\_c\_lag\_all | 1.000251 .0001006 2.49 0.013 1.000054 1.000448

sp75\_1725\_pp\_c\_lag\_all | .9999825 7.35e-06 -2.38 0.017 .9999681 .9999969

sp75\_1906\_pp\_c\_lag\_all | 1.000176 .000115 1.53 0.127 .9999502 1.000401

sp75\_1916\_pp\_c\_lag\_all | .9996178 .0001449 -2.64 0.008 .999334 .9999018

sp75\_203\_pp\_c\_lag\_all | .9999743 .0000275 -0.93 0.350 .9999203 1.000028

sp75\_204\_pp\_c\_lag\_all | 1.000014 .0000421 0.33 0.744 .9999312 1.000096

sp75\_205\_pp\_c\_lag\_all | 1.001242 .0007001 1.78 0.076 .9998707 1.002615

sp75\_207\_pp\_c\_lag\_all | 1.000187 .0004517 0.41 0.679 .9993021 1.001073

sp75\_208\_pp\_c\_lag\_all | 1.000031 .0000379 0.82 0.411 .9999569 1.000105

sp75\_209\_pp\_c\_lag\_all | 1.00024 .0002013 1.19 0.233 .9998454 1.000635

sp75\_212\_pp\_c\_lag\_all | 1.000037 .0000898 0.41 0.678 .9998613 1.000213

sp75\_213\_pp\_c\_lag\_all | 1.000349 .0006317 0.55 0.580 .9991118 1.001588

sp75\_215\_pp\_c\_lag\_all | .9986983 .0011546 -1.13 0.260 .9964378 1.000964

sp75\_332\_pp\_c\_lag\_all | .9994542 .0002697 -2.02 0.043 .9989257 .999983

sp75\_334\_pp\_c\_lag\_all | .9998178 .0001008 -1.81 0.071 .9996203 1.000015

sp75\_337\_pp\_c\_lag\_all | .9998917 .0000801 -1.35 0.176 .9997348 1.000049

sp75\_340\_pp\_c\_lag\_all | .9999547 .0000206 -2.20 0.028 .9999144 .999995

sp75\_343\_pp\_c\_lag\_all | .99973 .0002719 -0.99 0.321 .9991972 1.000263

sp75\_373\_pp\_c\_lag\_all | 1.010372 .0007051 14.79 0.000 1.008991 1.011755

sp75\_388\_pp\_c\_lag\_all | 1.000133 .0001856 0.72 0.473 .9997696 1.000497

sp75\_389\_pp\_c\_lag\_all | .9992487 .0003358 -2.24 0.025 .9985908 .9999071

sp75\_500\_pp\_c\_lag\_all | 1.000462 .0002051 2.25 0.024 1.00006 1.000864

sp75\_500\_1\_pp\_c\_lag\_all | 1.001065 .0015495 0.69 0.491 .9980331 1.004107

sp75\_501\_pp\_c\_lag\_all | 1.000375 .0003583 1.05 0.296 .9996726 1.001077

sp75\_501\_2\_pp\_c\_lag\_all | .9990389 .0003369 -2.85 0.004 .9983788 .9996995

sp75\_502\_pp\_c\_lag\_all | 1.001205 .0006227 1.94 0.053 .9999854 1.002426

sp75\_503\_pp\_c\_lag\_all | .9999919 4.98e-06 -1.62 0.105 .9999822 1.000002

sp75\_505\_pp\_c\_lag\_all | 1.000627 .0004308 1.46 0.146 .9997827 1.001472

sp75\_506\_1\_pp\_c\_lag\_all | 1.00068 .0002136 3.18 0.001 1.000261 1.001098

sp75\_507\_pp\_c\_lag\_all | 1.000083 .000134 0.62 0.538 .9998199 1.000345

sp75\_507\_1\_pp\_c\_lag\_all | 1.000011 .0000713 0.15 0.881 .9998709 1.00015

sp75\_508\_1\_pp\_c\_lag\_all | .9986422 .000615 -2.21 0.027 .9974375 .9998484

sp75\_509\_pp\_c\_lag\_all | .999968 .0004005 -0.08 0.936 .9991834 1.000753

sp75\_510\_pp\_c\_lag\_all | 1.002221 .0020212 1.10 0.271 .9982675 1.00619

sp75\_512\_1\_pp\_c\_lag\_all | .9992398 .0008807 -0.86 0.388 .9975152 1.000967

sp75\_523\_pp\_c\_lag\_all | .9999289 .0000724 -0.98 0.326 .9997871 1.000071

sp75\_523\_3\_pp\_c\_lag\_all | 1.000004 .0000202 0.21 0.835 .9999646 1.000044

sp75\_524\_pp\_c\_lag\_all | 1.00057 .0005211 1.10 0.273 .9995497 1.001592

sp75\_602\_pp\_c\_lag\_all | 1.000138 .0001567 0.88 0.378 .999831 1.000445

sp75\_603\_pp\_c\_lag\_all | .9997422 .000142 -1.82 0.069 .9994639 1.000021

sp75\_604\_pp\_c\_lag\_all | .9999934 8.46e-06 -0.79 0.432 .9999768 1.00001

sp75\_605\_pp\_c\_lag\_all | 1.000135 .000065 2.08 0.038 1.000008 1.000262

sp75\_606\_pp\_c\_lag\_all | 1.000026 .0000169 1.51 0.131 .9999924 1.000059

sp75\_607\_pp\_c\_lag\_all | .9998488 .0001328 -1.14 0.255 .9995886 1.000109

sp75\_703\_3\_pp\_c\_lag\_all | 1.000734 .0003035 2.42 0.016 1.00014 1.001329

sp75\_703\_4\_pp\_c\_lag\_all | 1.002145 .0010423 2.06 0.039 1.000105 1.00419

sp75\_807\_pp\_c\_lag\_all | 1.000051 .0000214 2.38 0.017 1.000009 1.000093

sp75\_810\_pp\_c\_lag\_all | 1.000023 .000099 0.23 0.816 .999829 1.000217

sp75\_811\_pp\_c\_lag\_all | 1.000076 .0001131 0.68 0.499 .9998548 1.000298

sp75\_812\_pp\_c\_lag\_all | .9990972 .0003818 -2.36 0.018 .9983491 .9998458

sp75\_816\_pp\_c\_lag\_all | .999867 .0000765 -1.74 0.082 .9997171 1.000017

sp75\_817\_pp\_c\_lag\_all | .9996564 .0006176 -0.56 0.578 .9984466 1.000868

sp75\_906\_pp\_c\_lag\_all | .9991143 .0006764 -1.31 0.191 .9977894 1.000441

mine\_time | 1.012687 .0063834 2.00 0.045 1.000252 1.025276

onsite\_insp\_hours | .999946 .0000398 -1.35 0.176 .9998679 1.000024

|

state |

1 | .836306 .1358706 -1.10 0.271 .6082395 1.149889

2 | 1.107928 .0535467 2.12 0.034 1.007795 1.218009

3 | .6832149 .0717139 -3.63 0.000 .5561739 .8392745

4 | 1.039598 .0785184 0.51 0.607 .8965534 1.205465

5 | .8650828 .0945032 -1.33 0.185 .6983463 1.071629

6 | .7363639 .0345482 -6.52 0.000 .6716708 .807288

7 | .9334958 .2053395 -0.31 0.754 .6065617 1.436646

8 | .4602322 .0175198 -20.39 0.000 .4271437 .4958838

9 | .6478581 .0878849 -3.20 0.001 .4966044 .84518

10 | .8142596 .0922552 -1.81 0.070 .652112 1.016725

11 | 1.966485 .2377709 5.59 0.000 1.551567 2.492361

12 | .9603181 .0747443 -0.52 0.603 .8244487 1.118579

13 | 1.505816 .1788262 3.45 0.001 1.193124 1.900457

14 | .4134462 .0795771 -4.59 0.000 .2835215 .6029093

15 | .7038757 .0395182 -6.25 0.000 .6305308 .7857521

17 | .7213369 .1296832 -1.82 0.069 .5071165 1.02605

|

time |

2000 | 1.029282 .0567881 0.52 0.601 .923786 1.146825

2002 | .892 .0509653 -2.00 0.045 .7974999 .9976979

2003 | .8413762 .0587285 -2.47 0.013 .7337969 .9647273

2004 | .7596029 .0470012 -4.44 0.000 .672849 .8575424

2005 | .6842119 .0419351 -6.19 0.000 .6067653 .7715436

2006 | .6814366 .0432954 -6.04 0.000 .6016501 .7718039

2007 | .6578379 .0450225 -6.12 0.000 .5752578 .7522726

2008 | .5858116 .0416285 -7.53 0.000 .5096482 .6733571

2009 | .5286817 .0386132 -8.73 0.000 .4581684 .6100471

2010 | .5109759 .0364488 -9.41 0.000 .4443065 .5876492

2011 | .4801038 .0342219 -10.29 0.000 .4175046 .5520889

2012 | .4257595 .0341606 -10.64 0.000 .363805 .4982646

2013 | .4183322 .0353076 -10.33 0.000 .3545514 .4935867

2014 | .3947152 .0332374 -11.04 0.000 .3346629 .4655432

2015 | .3699474 .0322733 -11.40 0.000 .3118051 .4389314

|

\_cons | .000113 7.60e-06 -135.16 0.000 .000099 .0001289

ln(hours) | 1 (exposure)

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

.

. pause "next"

.

. eststo clear

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

note: sp48\_24\_pp\_c\_lag\_all omitted because of collinearity

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

Fitting Poisson model:

Iteration 0: log pseudolikelihood = -34277.834

Iteration 1: log pseudolikelihood = -20667.532

Iteration 2: log pseudolikelihood = -20043.927

Iteration 3: log pseudolikelihood = -20026.231

Iteration 4: log pseudolikelihood = -20026.221

Iteration 5: log pseudolikelihood = -20026.221

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 = -16776.142

Iteration 1: log pseudolikelihood = -16607.849

Iteration 2: log pseudolikelihood = -16585.323

Iteration 3: log pseudolikelihood = -16585.188

Iteration 4: log pseudolikelihood = -16585.188

Negative binomial regression Number of obs = 6,253

Wald chi2(111) = .

Dispersion = mean Prob > chi2 = .

Log pseudolikelihood = -16585.188 Pseudo R2 = 0.0463

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

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

| Robust

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

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

sp48\_11\_pp\_c\_lag\_all | 1.000206 .0001503 1.37 0.171 .9999114 1.000501

sp48\_24\_pp\_c\_lag\_all | 1 (omitted)

sp48\_25\_pp\_c\_lag\_all | .9992751 .0002353 -3.08 0.002 .9988139 .9997365

sp48\_26\_pp\_c\_lag\_all | 1.000262 .0003376 0.78 0.438 .9996004 1.000924

sp48\_27\_pp\_c\_lag\_all | 1.000011 .0001633 0.07 0.947 .9996907 1.000331

sp48\_28\_pp\_c\_lag\_all | .9996062 .0002067 -1.90 0.057 .9992012 1.000011

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

sp48\_5\_pp\_c\_lag\_all | 1.000343 .0004508 0.76 0.446 .9994601 1.001227

sp48\_6\_pp\_c\_lag\_all | 1.000071 .000119 0.60 0.551 .9998377 1.000304

sp48\_7\_pp\_c\_lag\_all | .999733 .0001313 -2.03 0.042 .9994757 .9999904

sp48\_8\_pp\_c\_lag\_all | 1.000179 .0002787 0.64 0.522 .9996325 1.000725

sp75\_100\_pp\_c\_lag\_all | 1.00074 .000399 1.86 0.063 .9999586 1.001523

sp75\_1002\_pp\_c\_lag\_all | 1.000119 .0000611 1.95 0.051 .9999992 1.000239

sp75\_1003\_pp\_c\_lag\_all | 1.000051 .0000265 1.91 0.056 .9999987 1.000103

sp75\_1003\_2\_pp\_c\_lag\_all | .9999338 .0001957 -0.34 0.735 .9995504 1.000317

sp75\_1311\_pp\_c\_lag\_all | 1.000294 .0002301 1.28 0.201 .9998433 1.000745

sp75\_1315\_pp\_c\_lag\_all | .9975523 .0020633 -1.18 0.236 .9935165 1.001605

sp75\_1316\_pp\_c\_lag\_all | .9994991 .0002915 -1.72 0.086 .998928 1.000071

sp75\_1318\_pp\_c\_lag\_all | .9947649 .000449 -11.63 0.000 .9938852 .9956453

sp75\_1400\_pp\_c\_lag\_all | 1.000097 .0001061 0.91 0.361 .999889 1.000305

sp75\_1400\_1\_pp\_c\_lag\_all | .9994124 .0004617 -1.27 0.203 .9985079 1.000318

sp75\_1403\_10\_pp\_c\_lag\_all | 1.000109 .0000293 3.71 0.000 1.000051 1.000166

sp75\_1403\_5\_pp\_c\_lag\_all | .9999723 .0000123 -2.26 0.024 .9999482 .9999964

sp75\_1403\_6\_pp\_c\_lag\_all | 1.000035 .0000144 2.45 0.014 1.000007 1.000063

sp75\_1403\_7\_pp\_c\_lag\_all | .9998702 .0001002 -1.30 0.195 .9996739 1.000067

sp75\_1403\_8\_pp\_c\_lag\_all | .9999766 .0000203 -1.15 0.250 .9999367 1.000016

sp75\_1404\_pp\_c\_lag\_all | 1.000126 .0006377 0.20 0.843 .9988771 1.001377

sp75\_1404\_1\_pp\_c\_lag\_all | .9975164 .0006237 -3.98 0.000 .9962948 .9987395

sp75\_1405\_pp\_c\_lag\_all | .9999668 .0000422 -0.79 0.431 .9998841 1.00005

sp75\_1405\_1\_pp\_c\_lag\_all | 1.000043 .0007149 0.06 0.952 .9986428 1.001445

sp75\_153\_pp\_c\_lag\_all | 1.000671 .0006091 1.10 0.271 .9994776 1.001865

sp75\_156\_pp\_c\_lag\_all | .997246 .0008213 -3.35 0.001 .9956376 .998857

sp75\_160\_pp\_c\_lag\_all | 1.004683 .0020696 2.27 0.023 1.000635 1.008748

sp75\_1719\_2\_pp\_c\_lag\_all | 1.000283 .000571 0.49 0.621 .999164 1.001402

sp75\_1719\_4\_pp\_c\_lag\_all | .9999718 .0001074 -0.26 0.793 .9997614 1.000182

sp75\_1720\_pp\_c\_lag\_all | 1.000202 .000092 2.19 0.028 1.000021 1.000382

sp75\_1725\_pp\_c\_lag\_all | .9999847 6.79e-06 -2.25 0.025 .9999714 .999998

sp75\_1906\_pp\_c\_lag\_all | 1.000144 .0000989 1.45 0.146 .9999499 1.000338

sp75\_1916\_pp\_c\_lag\_all | .9997398 .0001291 -2.01 0.044 .9994868 .999993

sp75\_203\_pp\_c\_lag\_all | .9999803 .0000243 -0.81 0.417 .9999326 1.000028

sp75\_204\_pp\_c\_lag\_all | 1.00003 .000038 0.79 0.431 .9999554 1.000104

sp75\_205\_pp\_c\_lag\_all | 1.001263 .000739 1.71 0.087 .999816 1.002713

sp75\_207\_pp\_c\_lag\_all | 1.000355 .0004381 0.81 0.417 .999497 1.001214

sp75\_208\_pp\_c\_lag\_all | 1.000043 .0000334 1.30 0.194 .9999779 1.000109

sp75\_209\_pp\_c\_lag\_all | 1.000134 .000187 0.72 0.472 .9997679 1.000501

sp75\_212\_pp\_c\_lag\_all | 1.000059 .0000805 0.73 0.463 .9999014 1.000217

sp75\_213\_pp\_c\_lag\_all | 1.000484 .0005251 0.92 0.357 .9994554 1.001514

sp75\_215\_pp\_c\_lag\_all | .9992746 .0010145 -0.71 0.475 .9972883 1.001265

sp75\_332\_pp\_c\_lag\_all | .9994406 .0002594 -2.16 0.031 .9989323 .9999492

sp75\_334\_pp\_c\_lag\_all | .9998179 .0000921 -1.98 0.048 .9996373 .9999985

sp75\_337\_pp\_c\_lag\_all | .9999031 .0000708 -1.37 0.171 .9997644 1.000042

sp75\_340\_pp\_c\_lag\_all | .9999547 .0000178 -2.54 0.011 .9999198 .9999897

sp75\_343\_pp\_c\_lag\_all | .9998636 .0002331 -0.59 0.559 .9994068 1.000321

sp75\_373\_pp\_c\_lag\_all | 1.010366 .0006648 15.67 0.000 1.009064 1.01167

sp75\_388\_pp\_c\_lag\_all | 1.000071 .0001749 0.40 0.686 .999728 1.000414

sp75\_389\_pp\_c\_lag\_all | .9993283 .000333 -2.02 0.044 .9986758 .9999813

sp75\_500\_pp\_c\_lag\_all | 1.000316 .0001791 1.77 0.077 .9999655 1.000667

sp75\_500\_1\_pp\_c\_lag\_all | 1.000086 .0013436 0.06 0.949 .9974559 1.002723

sp75\_501\_pp\_c\_lag\_all | 1.000454 .0003457 1.31 0.189 .9997769 1.001132

sp75\_501\_2\_pp\_c\_lag\_all | .9990574 .0003347 -2.81 0.005 .9984016 .9997137

sp75\_502\_pp\_c\_lag\_all | 1.001185 .0005986 1.98 0.048 1.000012 1.002358

sp75\_503\_pp\_c\_lag\_all | .9999934 4.44e-06 -1.49 0.137 .9999847 1.000002

sp75\_505\_pp\_c\_lag\_all | 1.00056 .0003821 1.47 0.142 .9998119 1.00131

sp75\_506\_1\_pp\_c\_lag\_all | 1.000736 .0001939 3.80 0.000 1.000356 1.001116

sp75\_507\_pp\_c\_lag\_all | 1.000067 .0001215 0.55 0.583 .9998285 1.000305

sp75\_507\_1\_pp\_c\_lag\_all | 1.000006 .0000595 0.10 0.923 .9998892 1.000122

sp75\_508\_1\_pp\_c\_lag\_all | .9986564 .0005712 -2.35 0.019 .9975376 .9997765

sp75\_509\_pp\_c\_lag\_all | 1.000065 .0003837 0.17 0.865 .9993136 1.000818

sp75\_510\_pp\_c\_lag\_all | 1.00233 .0019262 1.21 0.226 .9985622 1.006113

sp75\_512\_1\_pp\_c\_lag\_all | .9996034 .0007381 -0.54 0.591 .9981578 1.001051

sp75\_523\_pp\_c\_lag\_all | .999945 .0000675 -0.82 0.415 .9998128 1.000077

sp75\_523\_3\_pp\_c\_lag\_all | .9999995 .0000177 -0.03 0.977 .9999648 1.000034

sp75\_524\_pp\_c\_lag\_all | 1.000601 .0004864 1.24 0.216 .9996482 1.001555

sp75\_602\_pp\_c\_lag\_all | 1.000051 .0001163 0.43 0.664 .9998226 1.000279

sp75\_603\_pp\_c\_lag\_all | .9997543 .0001356 -1.81 0.070 .9994887 1.00002

sp75\_604\_pp\_c\_lag\_all | .9999884 7.33e-06 -1.58 0.115 .9999741 1.000003

sp75\_605\_pp\_c\_lag\_all | 1.000092 .0000567 1.63 0.103 .9999812 1.000203

sp75\_606\_pp\_c\_lag\_all | 1.000025 .0000153 1.61 0.107 .9999947 1.000055

sp75\_607\_pp\_c\_lag\_all | .9998333 .0001109 -1.50 0.133 .999616 1.000051

sp75\_703\_3\_pp\_c\_lag\_all | 1.0007 .0002792 2.51 0.012 1.000153 1.001247

sp75\_703\_4\_pp\_c\_lag\_all | 1.002494 .0009365 2.67 0.008 1.00066 1.004331

sp75\_807\_pp\_c\_lag\_all | 1.000043 .0000187 2.28 0.023 1.000006 1.000079

sp75\_810\_pp\_c\_lag\_all | 1.000052 .0000877 0.60 0.551 .9998804 1.000224

sp75\_811\_pp\_c\_lag\_all | 1.000044 .0000979 0.45 0.656 .9998518 1.000236

sp75\_812\_pp\_c\_lag\_all | .9992513 .0003687 -2.03 0.042 .998529 .9999742

sp75\_816\_pp\_c\_lag\_all | .999924 .0000676 -1.12 0.261 .9997915 1.000057

sp75\_817\_pp\_c\_lag\_all | .9996223 .0005658 -0.67 0.504 .998514 1.000732

sp75\_906\_pp\_c\_lag\_all | .9989326 .0007305 -1.46 0.144 .9975019 1.000365

mine\_time | 1.012546 .0060706 2.08 0.038 1.000717 1.024514

onsite\_insp\_hours | .9999476 .0000382 -1.37 0.170 .9998727 1.000022

|

state |

1 | .837167 .1210547 -1.23 0.219 .6305623 1.111466

2 | 1.235336 .0564278 4.63 0.000 1.129546 1.351034

3 | .6653101 .0684428 -3.96 0.000 .5438236 .8139358

4 | 1.034257 .0701848 0.50 0.620 .9054529 1.181384

5 | .8750908 .0976263 -1.20 0.232 .7032212 1.088966

6 | .7661606 .034109 -5.98 0.000 .7021417 .8360164

7 | .9479052 .197908 -0.26 0.798 .6295745 1.427193

8 | .4494194 .0172112 -20.88 0.000 .416921 .484451

9 | .6931053 .0894172 -2.84 0.004 .5382525 .8925085

10 | .8558788 .0866551 -1.54 0.124 .7018281 1.043743

11 | 2.022662 .2178913 6.54 0.000 1.637674 2.498153

12 | 1.016106 .0718111 0.23 0.821 .8846713 1.167067

13 | 1.463814 .1554275 3.59 0.000 1.188791 1.802463

14 | .3999065 .0780368 -4.70 0.000 .272808 .586219

15 | .728819 .0378158 -6.10 0.000 .6583455 .8068365

17 | .7232435 .1197049 -1.96 0.050 .5228789 1.000387

|

time |

2000 | 1.047566 .0457925 1.06 0.288 .9615516 1.141275

2002 | .91694 .0418871 -1.90 0.058 .8384107 1.002825

2003 | .8344224 .0444339 -3.40 0.001 .7517243 .9262183

2004 | .78051 .0390374 -4.95 0.000 .7076286 .8608978

2005 | .7075039 .0359301 -6.81 0.000 .6404735 .7815495

2006 | .7053866 .0368112 -6.69 0.000 .6368051 .781354

2007 | .6915013 .0401284 -6.36 0.000 .6171591 .7747988

2008 | .6129866 .0365995 -8.20 0.000 .5452911 .6890861

2009 | .5460203 .0333379 -9.91 0.000 .4844375 .6154316

2010 | .5290984 .0324908 -10.37 0.000 .4691006 .59677

2011 | .4938786 .0302006 -11.54 0.000 .438096 .5567639

2012 | .4312625 .0293373 -12.36 0.000 .3774308 .492772

2013 | .4140088 .029892 -12.21 0.000 .3593782 .476944

2014 | .403954 .0299401 -12.23 0.000 .3493356 .4671119

2015 | .3839762 .0299713 -12.26 0.000 .3295062 .4474505

|

\_cons | .0001081 5.85e-06 -168.80 0.000 .0000972 .0001202

ln(hours) | 1 (exposure)

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

/lnalpha | -1.267327 .0582503 -1.381495 -1.153159

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

alpha | .2815833 .0164023 .2512026 .3156382

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

(est1 stored)

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

. est store nbin

.

. pause "next"

.

. // test for over-dispersion

. lrtest pois nbin, stats force

Likelihood-ratio test LR chi2(1) = 6882.07

(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 -20026.22 112 40276.44 41031.41

nbin | 6,253 -17389.65 -16585.19 113 33396.38 34158.09

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

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

.

. pause "next"

.

. // final model + diagnostics/assessment

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

. predict cpp4\_yhat

(option n assumed; predicted number of events)

. gen cpp4\_res = dv - cpp4\_yhat

.

. summ dv cpp4\_yhat

Variable | Obs Mean Std. Dev. Min Max

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

dv | 6,253 9.976651 14.85334 0 200

cpp4\_yhat | 6,253 10.44756 15.01413 .0032614 159.1444

. /\*

> pause "next"

>

> scatter dv cpp4\_yhat

>

> pause "next"

>

> scatter cpp4\_res dv

>

> pause "next"

>

> scatter cpp4\_res cpp4\_yhat

> \*/

. pause "complete: C.PP.4"

.