. // Model C.PP.3

.

. // poisson model

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

Iteration 0: log pseudolikelihood = -22738.366

Iteration 1: log pseudolikelihood = -20312.291

Iteration 2: log pseudolikelihood = -20299.126

Iteration 3: log pseudolikelihood = -20298.939

Iteration 4: log pseudolikelihood = -20298.909

Iteration 5: log pseudolikelihood = -20298.901

Iteration 6: log pseudolikelihood = -20298.9

Iteration 7: log pseudolikelihood = -20298.9

Iteration 8: log pseudolikelihood = -20298.899

Iteration 9: log pseudolikelihood = -20298.899

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,136

Scale parameter = 1

Deviance = 21069.81866 (1/df) Deviance = 3.433804

Pearson = 25611.083 (1/df) Pearson = 4.173905

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

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

AIC = 6.529953

Log pseudolikelihood = -20298.89943 BIC = -32563.83

(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\_4lag | .9999828 .0001466 -0.12 0.907 .9996954 1.00027

sp48\_24\_pp\_c\_4lag | 1.000584 .0000446 13.10 0.000 1.000496 1.000671

sp48\_25\_pp\_c\_4lag | .9999373 .0002714 -0.23 0.817 .9994054 1.000469

sp48\_26\_pp\_c\_4lag | 1.000526 .0002645 1.99 0.047 1.000008 1.001044

sp48\_27\_pp\_c\_4lag | .9998515 .0002154 -0.69 0.490 .9994294 1.000274

sp48\_28\_pp\_c\_4lag | .9991011 .0003064 -2.93 0.003 .9985006 .9997018

sp48\_4\_pp\_c\_4lag | 1.003905 .001144 3.42 0.001 1.001666 1.00615

sp48\_5\_pp\_c\_4lag | 1.000025 .0005046 0.05 0.961 .9990365 1.001014

sp48\_6\_pp\_c\_4lag | 1.000123 .0001766 0.69 0.488 .9997765 1.000469

sp48\_7\_pp\_c\_4lag | 1.000068 .0001267 0.53 0.594 .9998193 1.000316

sp48\_8\_pp\_c\_4lag | 1.000066 .0002928 0.22 0.822 .9994921 1.00064

sp75\_100\_pp\_c\_4lag | 1.000996 .0003951 2.52 0.012 1.000222 1.001771

sp75\_1002\_pp\_c\_4lag | .999994 .0000613 -0.10 0.922 .9998738 1.000114

sp75\_1003\_pp\_c\_4lag | .9999521 .0000611 -0.78 0.433 .9998324 1.000072

sp75\_1003\_2\_pp\_c\_4lag | .9997466 .0001202 -2.11 0.035 .999511 .9999822

sp75\_1311\_pp\_c\_4lag | .9996747 .0002693 -1.21 0.227 .9991471 1.000203

sp75\_1315\_pp\_c\_4lag | .996101 .0033918 -1.15 0.251 .9894753 1.002771

sp75\_1316\_pp\_c\_4lag | .9997899 .0003076 -0.68 0.495 .9991871 1.000393

sp75\_1318\_pp\_c\_4lag | .6028536 .0232284 -13.13 0.000 .5590033 .6501436

sp75\_1400\_pp\_c\_4lag | .9997565 .0002006 -1.21 0.225 .9993635 1.00015

sp75\_1400\_1\_pp\_c\_4lag | .9995746 .0007461 -0.57 0.569 .9981134 1.001038

sp75\_1403\_10\_pp\_c\_4lag | 1.000141 .0000505 2.79 0.005 1.000042 1.00024

sp75\_1403\_5\_pp\_c\_4lag | .9999232 .0000249 -3.08 0.002 .9998744 .999972

sp75\_1403\_6\_pp\_c\_4lag | 1.000016 .0000253 0.64 0.519 .9999668 1.000066

sp75\_1403\_7\_pp\_c\_4lag | .9999496 .0001585 -0.32 0.751 .999639 1.00026

sp75\_1403\_8\_pp\_c\_4lag | .9999381 .0000294 -2.11 0.035 .9998805 .9999956

sp75\_1404\_pp\_c\_4lag | 1.000062 .0006143 0.10 0.920 .9988584 1.001267

sp75\_1404\_1\_pp\_c\_4lag | 1.00003 .0004788 0.06 0.950 .9990922 1.000969

sp75\_1405\_pp\_c\_4lag | .9998848 .0000412 -2.80 0.005 .9998041 .9999655

sp75\_1405\_1\_pp\_c\_4lag | 1.000302 .0005212 0.58 0.562 .9992814 1.001324

sp75\_153\_pp\_c\_4lag | 1.000199 .0006513 0.31 0.759 .9989238 1.001477

sp75\_156\_pp\_c\_4lag | .998626 .0006974 -1.97 0.049 .99726 .9999939

sp75\_160\_pp\_c\_4lag | 1.002596 .0024281 1.07 0.284 .9978486 1.007367

sp75\_1719\_2\_pp\_c\_4lag | .9996186 .0002754 -1.38 0.166 .9990789 1.000159

sp75\_1719\_4\_pp\_c\_4lag | 1.000106 .0001052 1.00 0.315 .9998996 1.000312

sp75\_1720\_pp\_c\_4lag | 1.000175 .0001226 1.43 0.152 .9999353 1.000416

sp75\_1725\_pp\_c\_4lag | .9999966 9.89e-06 -0.35 0.727 .9999772 1.000016

sp75\_1906\_pp\_c\_4lag | 1.000129 .0001785 0.72 0.470 .9997792 1.000479

sp75\_1916\_pp\_c\_4lag | 1.000181 .0001435 1.26 0.206 .9999002 1.000463

sp75\_203\_pp\_c\_4lag | 1.000054 .0000368 1.46 0.144 .9999817 1.000126

sp75\_204\_pp\_c\_4lag | 1.000065 .0000521 1.25 0.210 .9999632 1.000168

sp75\_205\_pp\_c\_4lag | 1.001083 .0015554 0.70 0.486 .9980392 1.004136

sp75\_207\_pp\_c\_4lag | 1.001076 .0003727 2.89 0.004 1.000345 1.001806

sp75\_208\_pp\_c\_4lag | 1.000083 .0000521 1.59 0.111 .9999809 1.000185

sp75\_209\_pp\_c\_4lag | .9997161 .0002742 -1.03 0.301 .9991788 1.000254

sp75\_212\_pp\_c\_4lag | 1.000442 .0001846 2.39 0.017 1.00008 1.000804

sp75\_213\_pp\_c\_4lag | 1.001109 .0001877 5.91 0.000 1.000741 1.001477

sp75\_215\_pp\_c\_4lag | 1.00009 .0010031 0.09 0.928 .998126 1.002058

sp75\_332\_pp\_c\_4lag | .9991913 .0003905 -2.07 0.038 .9984262 .999957

sp75\_334\_pp\_c\_4lag | .9999884 .0001115 -0.10 0.917 .9997699 1.000207

sp75\_337\_pp\_c\_4lag | .9997262 .0000789 -3.47 0.001 .9995716 .9998809

sp75\_340\_pp\_c\_4lag | .9999689 .0000299 -1.04 0.298 .9999104 1.000027

sp75\_343\_pp\_c\_4lag | 1.000337 .0002516 1.34 0.181 .9998438 1.00083

sp75\_373\_pp\_c\_4lag | 1.01946 .0011831 16.61 0.000 1.017144 1.021781

sp75\_388\_pp\_c\_4lag | .9997842 .000281 -0.77 0.442 .9992336 1.000335

sp75\_389\_pp\_c\_4lag | 1.000179 .0007079 0.25 0.800 .9987928 1.001568

sp75\_500\_pp\_c\_4lag | .9999408 .000243 -0.24 0.807 .9994645 1.000417

sp75\_500\_1\_pp\_c\_4lag | .9988443 .0008004 -1.44 0.149 .9972769 1.000414

sp75\_501\_pp\_c\_4lag | .9998313 .0003683 -0.46 0.647 .9991096 1.000553

sp75\_501\_2\_pp\_c\_4lag | .9994897 .0005002 -1.02 0.308 .9985099 1.000471

sp75\_502\_pp\_c\_4lag | 1.001509 .000653 2.31 0.021 1.00023 1.002789

sp75\_503\_pp\_c\_4lag | 1.000003 8.14e-06 0.42 0.677 .9999874 1.000019

sp75\_505\_pp\_c\_4lag | 1.000051 .0007961 0.06 0.949 .9984917 1.001612

sp75\_506\_1\_pp\_c\_4lag | 1.000398 .0002287 1.74 0.082 .9999497 1.000846

sp75\_507\_pp\_c\_4lag | 1.000123 .0001398 0.88 0.378 .9998494 1.000397

sp75\_507\_1\_pp\_c\_4lag | 1.000126 .0001019 1.23 0.218 .9999259 1.000325

sp75\_508\_1\_pp\_c\_4lag | .9955863 .0008477 -5.20 0.000 .9939261 .9972491

sp75\_509\_pp\_c\_4lag | 1.000726 .0005006 1.45 0.147 .9997453 1.001707

sp75\_510\_pp\_c\_4lag | 1.001041 .0011504 0.91 0.365 .9987884 1.003298

sp75\_512\_1\_pp\_c\_4lag | 1.000797 .0007525 1.06 0.289 .999323 1.002273

sp75\_523\_pp\_c\_4lag | .9998915 .0001105 -0.98 0.326 .999675 1.000108

sp75\_523\_3\_pp\_c\_4lag | .9999119 .0000296 -2.98 0.003 .9998539 .9999699

sp75\_524\_pp\_c\_4lag | 1.000732 .0004007 1.83 0.068 .9999469 1.001517

sp75\_602\_pp\_c\_4lag | 1.00004 .0001078 0.37 0.713 .9998283 1.000251

sp75\_603\_pp\_c\_4lag | 1.000137 .0001254 1.09 0.274 .9998915 1.000383

sp75\_604\_pp\_c\_4lag | .9999957 .0000157 -0.27 0.786 .9999649 1.000027

sp75\_605\_pp\_c\_4lag | 1.000056 .0000608 0.93 0.353 .9999373 1.000176

sp75\_606\_pp\_c\_4lag | .999988 .0000372 -0.32 0.746 .9999152 1.000061

sp75\_607\_pp\_c\_4lag | .9998634 .0001133 -1.21 0.228 .9996414 1.000086

sp75\_703\_3\_pp\_c\_4lag | 1.000087 .0002417 0.36 0.718 .9996136 1.000561

sp75\_703\_4\_pp\_c\_4lag | .997493 .001043 -2.40 0.016 .9954508 .9995393

sp75\_807\_pp\_c\_4lag | 1.000024 .0000307 0.77 0.439 .9999636 1.000084

sp75\_810\_pp\_c\_4lag | 1.000382 .0001377 2.78 0.005 1.000113 1.000652

sp75\_811\_pp\_c\_4lag | 1.000115 .0001859 0.62 0.536 .9997508 1.00048

sp75\_812\_pp\_c\_4lag | .9998782 .0004971 -0.25 0.806 .9989043 1.000853

sp75\_816\_pp\_c\_4lag | 1.000012 .0000795 0.16 0.877 .9998566 1.000168

sp75\_817\_pp\_c\_4lag | .9990142 .0005548 -1.78 0.076 .9979274 1.000102

sp75\_906\_pp\_c\_4lag | .9974003 .0012089 -2.15 0.032 .9950336 .9997726

mine\_time | 1.008722 .005999 1.46 0.144 .9970322 1.020549

onsite\_insp\_hours | .9998716 .0000398 -3.23 0.001 .9997936 .9999496

|

state |

1 | .9011703 .0743654 -1.26 0.207 .7665931 1.059373

2 | 1.507499 .0790052 7.83 0.000 1.360339 1.670579

3 | .6138196 .0628433 -4.77 0.000 .5022202 .7502178

4 | 1.130724 .0872121 1.59 0.111 .9720845 1.315253

5 | 1.022429 .1276238 0.18 0.859 .8005394 1.305821

6 | .9325421 .0479826 -1.36 0.175 .8430846 1.031492

7 | 1.048489 .1684824 0.29 0.768 .765215 1.436627

8 | .529542 .0253204 -13.30 0.000 .4821694 .5815688

9 | .6458979 .025953 -10.88 0.000 .5969823 .6988215

10 | .9863727 .0755623 -0.18 0.858 .8488553 1.146168

11 | 1.728679 .2817977 3.36 0.001 1.255907 2.379423

12 | .9688444 .0900899 -0.34 0.734 .8074272 1.162531

13 | 1.527713 .1534595 4.22 0.000 1.254695 1.860138

14 | .3982323 .0598648 -6.12 0.000 .296605 .5346808

15 | .8032328 .0534286 -3.29 0.001 .7050535 .9150837

17 | .6899245 .0332967 -7.69 0.000 .6276556 .7583711

|

time |

2000 | 1.038354 .0435448 0.90 0.369 .9564214 1.127306

2002 | .9566527 .0369638 -1.15 0.251 .8868802 1.031914

2003 | .8359123 .0324766 -4.61 0.000 .7746224 .9020516

2004 | .8172321 .0361632 -4.56 0.000 .7493401 .8912752

2005 | .7681804 .0356761 -5.68 0.000 .7013445 .8413856

2006 | .7326983 .0380839 -5.98 0.000 .6617315 .8112758

2007 | .7343367 .0406619 -5.58 0.000 .6588131 .818518

2008 | .6532713 .0372131 -7.47 0.000 .5842592 .730435

2009 | .5737998 .0349386 -9.12 0.000 .5092498 .6465319

2010 | .566014 .0363135 -8.87 0.000 .4991339 .6418556

2011 | .5206202 .030538 -11.13 0.000 .4640793 .5840498

2012 | .4542199 .028959 -12.38 0.000 .4008643 .5146771

2013 | .4211466 .0319572 -11.40 0.000 .3629467 .488679

2014 | .4438918 .0344638 -10.46 0.000 .3812323 .5168499

2015 | .4042188 .032893 -11.13 0.000 .344628 .4741136

|

\_cons | .0000985 4.93e-06 -184.28 0.000 .0000893 .0001087

ln(hours) | 1 (exposure)

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.

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

. est store pois

. estat gof

Deviance goodness-of-fit = 21069.82

Prob > chi2(6138) = 0.0000

Pearson goodness-of-fit = 25611.06

Prob > chi2(6138) = 0.0000

.

. pause "next"

.

. // negative binomial model

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

Iteration 0: log pseudolikelihood = -17721.818

Iteration 1: log pseudolikelihood = -17477.265

Iteration 2: log pseudolikelihood = -17471.447

Iteration 3: log pseudolikelihood = -17471.408

Iteration 4: log pseudolikelihood = -17471.4

Iteration 5: log pseudolikelihood = -17471.398

Iteration 6: log pseudolikelihood = -17471.398

Iteration 7: log pseudolikelihood = -17471.398

Iteration 8: log pseudolikelihood = -17471.398

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,135

Scale parameter = 1

Deviance = 3854.825394 (1/df) Deviance = .6283334

Pearson = 5130.588158 (1/df) Pearson = .8362817

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

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

AIC = 5.625907

Log pseudolikelihood = -17471.39789 BIC = -49770.08

(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\_pp\_c\_4lag | 1.000254 .0001822 1.39 0.164 .9998965 1.000611

sp48\_24\_pp\_c\_4lag | 1.000461 .0000598 7.70 0.000 1.000343 1.000578

sp48\_25\_pp\_c\_4lag | .9999541 .0002776 -0.17 0.869 .9994102 1.000498

sp48\_26\_pp\_c\_4lag | 1.000717 .0003018 2.38 0.018 1.000125 1.001309

sp48\_27\_pp\_c\_4lag | .999653 .0002569 -1.35 0.177 .9991497 1.000157

sp48\_28\_pp\_c\_4lag | .9995998 .0003599 -1.11 0.266 .9988946 1.000305

sp48\_4\_pp\_c\_4lag | 1.002214 .0011494 1.93 0.054 .999964 1.00447

sp48\_5\_pp\_c\_4lag | 1.000045 .0004996 0.09 0.928 .9990664 1.001025

sp48\_6\_pp\_c\_4lag | .9999417 .0002349 -0.25 0.804 .9994815 1.000402

sp48\_7\_pp\_c\_4lag | 1.000168 .0001737 0.96 0.335 .9998272 1.000508

sp48\_8\_pp\_c\_4lag | 1.000322 .0003461 0.93 0.351 .9996443 1.001001

sp75\_100\_pp\_c\_4lag | 1.001491 .0005997 2.49 0.013 1.000316 1.002667

sp75\_1002\_pp\_c\_4lag | .9998815 .0000984 -1.20 0.228 .9996887 1.000074

sp75\_1003\_pp\_c\_4lag | .9999117 .0000745 -1.19 0.236 .9997657 1.000058

sp75\_1003\_2\_pp\_c\_4lag | .9996236 .0001234 -3.05 0.002 .9993817 .9998655

sp75\_1311\_pp\_c\_4lag | .9994959 .000526 -0.96 0.338 .9984655 1.000527

sp75\_1315\_pp\_c\_4lag | .9912004 .004881 -1.79 0.073 .9816798 1.000813

sp75\_1316\_pp\_c\_4lag | .9990244 .0007133 -1.37 0.172 .9976274 1.000423

sp75\_1318\_pp\_c\_4lag | .5875278 .022636 -13.80 0.000 .5447958 .6336116

sp75\_1400\_pp\_c\_4lag | .9999357 .0002443 -0.26 0.793 .999457 1.000415

sp75\_1400\_1\_pp\_c\_4lag | .9995767 .0007207 -0.59 0.557 .9981652 1.00099

sp75\_1403\_10\_pp\_c\_4lag | 1.000112 .0000538 2.09 0.037 1.000007 1.000218

sp75\_1403\_5\_pp\_c\_4lag | .9999257 .0000366 -2.03 0.042 .999854 .9999975

sp75\_1403\_6\_pp\_c\_4lag | 1.000029 .0000333 0.86 0.387 .9999636 1.000094

sp75\_1403\_7\_pp\_c\_4lag | .9999856 .0001656 -0.09 0.931 .9996611 1.00031

sp75\_1403\_8\_pp\_c\_4lag | .9999392 .0000314 -1.94 0.053 .9998776 1.000001

sp75\_1404\_pp\_c\_4lag | .9996398 .0010341 -0.35 0.728 .997615 1.001669

sp75\_1404\_1\_pp\_c\_4lag | .9993385 .0005672 -1.17 0.244 .9982274 1.000451

sp75\_1405\_pp\_c\_4lag | .9998665 .0000597 -2.24 0.025 .9997494 .9999835

sp75\_1405\_1\_pp\_c\_4lag | 1.000824 .000857 0.96 0.336 .9991461 1.002505

sp75\_153\_pp\_c\_4lag | .9988899 .0008918 -1.24 0.213 .9971435 1.000639

sp75\_156\_pp\_c\_4lag | .9987003 .0008022 -1.62 0.105 .9971292 1.000274

sp75\_160\_pp\_c\_4lag | 1.007387 .0030404 2.44 0.015 1.001446 1.013364

sp75\_1719\_2\_pp\_c\_4lag | .9997292 .000551 -0.49 0.623 .9986499 1.00081

sp75\_1719\_4\_pp\_c\_4lag | .999951 .0001035 -0.47 0.636 .9997482 1.000154

sp75\_1720\_pp\_c\_4lag | 1.000274 .0001485 1.85 0.065 .9999831 1.000565

sp75\_1725\_pp\_c\_4lag | 1.000011 .0000128 0.86 0.389 .9999859 1.000036

sp75\_1906\_pp\_c\_4lag | 1.000439 .0001897 2.31 0.021 1.000067 1.000811

sp75\_1916\_pp\_c\_4lag | 1.000051 .0001768 0.29 0.773 .9997047 1.000398

sp75\_203\_pp\_c\_4lag | 1.000011 .0000426 0.27 0.790 .9999279 1.000095

sp75\_204\_pp\_c\_4lag | 1.000113 .0000581 1.94 0.052 .999999 1.000227

sp75\_205\_pp\_c\_4lag | 1.00206 .0009485 2.17 0.030 1.000203 1.003921

sp75\_207\_pp\_c\_4lag | 1.000572 .0004334 1.32 0.187 .9997228 1.001422

sp75\_208\_pp\_c\_4lag | .9999865 .000066 -0.21 0.837 .9998571 1.000116

sp75\_209\_pp\_c\_4lag | 1.000033 .0003085 0.11 0.915 .9994286 1.000638

sp75\_212\_pp\_c\_4lag | 1.00053 .0002127 2.49 0.013 1.000113 1.000947

sp75\_213\_pp\_c\_4lag | 1.000754 .0003464 2.18 0.030 1.000075 1.001433

sp75\_215\_pp\_c\_4lag | .9993087 .0014548 -0.48 0.635 .9964615 1.002164

sp75\_332\_pp\_c\_4lag | .9996276 .0004208 -0.88 0.376 .9988032 1.000453

sp75\_334\_pp\_c\_4lag | 1.000078 .0001517 0.51 0.609 .9997804 1.000375

sp75\_337\_pp\_c\_4lag | .999786 .0001085 -1.97 0.049 .9995735 .9999986

sp75\_340\_pp\_c\_4lag | .9999706 .0000393 -0.75 0.454 .9998936 1.000048

sp75\_343\_pp\_c\_4lag | 1.000173 .0002676 0.65 0.518 .9996488 1.000698

sp75\_373\_pp\_c\_4lag | 1.020055 .0012801 15.82 0.000 1.017549 1.022567

sp75\_388\_pp\_c\_4lag | 1.000159 .0002979 0.53 0.594 .9995749 1.000743

sp75\_389\_pp\_c\_4lag | .9996742 .0007155 -0.46 0.649 .9982728 1.001078

sp75\_500\_pp\_c\_4lag | 1.000114 .0002721 0.42 0.676 .9995807 1.000647

sp75\_500\_1\_pp\_c\_4lag | .9992888 .0013397 -0.53 0.596 .9966665 1.001918

sp75\_501\_pp\_c\_4lag | .9994407 .000431 -1.30 0.195 .9985962 1.000286

sp75\_501\_2\_pp\_c\_4lag | .9997076 .0005025 -0.58 0.561 .9987233 1.000693

sp75\_502\_pp\_c\_4lag | 1.001715 .0009009 1.91 0.057 .999951 1.003483

sp75\_503\_pp\_c\_4lag | .9999966 .0000107 -0.32 0.749 .9999757 1.000017

sp75\_505\_pp\_c\_4lag | 1.000348 .0005267 0.66 0.508 .9993167 1.001381

sp75\_506\_1\_pp\_c\_4lag | 1.000595 .0003355 1.77 0.076 .9999379 1.001253

sp75\_507\_pp\_c\_4lag | 1.000025 .0001754 0.14 0.886 .9996813 1.000369

sp75\_507\_1\_pp\_c\_4lag | .9999506 .0000939 -0.53 0.598 .9997666 1.000135

sp75\_508\_1\_pp\_c\_4lag | .9945786 .0008764 -6.17 0.000 .9928623 .9962978

sp75\_509\_pp\_c\_4lag | 1.000864 .0005064 1.71 0.088 .9998719 1.001857

sp75\_510\_pp\_c\_4lag | 1.000897 .0013662 0.66 0.511 .998223 1.003578

sp75\_512\_1\_pp\_c\_4lag | .9999556 .0009775 -0.05 0.964 .9980416 1.001873

sp75\_523\_pp\_c\_4lag | .9997959 .0001473 -1.39 0.166 .9995071 1.000085

sp75\_523\_3\_pp\_c\_4lag | .9999517 .0000355 -1.36 0.174 .9998821 1.000021

sp75\_524\_pp\_c\_4lag | 1.000488 .0003962 1.23 0.218 .999712 1.001265

sp75\_602\_pp\_c\_4lag | 1.000023 .0001962 0.12 0.906 .9996388 1.000408

sp75\_603\_pp\_c\_4lag | 1.000348 .0001888 1.84 0.066 .9999777 1.000718

sp75\_604\_pp\_c\_4lag | 1.000025 .0000175 1.42 0.155 .9999906 1.000059

sp75\_605\_pp\_c\_4lag | 1.000042 .0000744 0.57 0.570 .9998964 1.000188

sp75\_606\_pp\_c\_4lag | .9999731 .0000371 -0.72 0.469 .9999003 1.000046

sp75\_607\_pp\_c\_4lag | .9997888 .0001197 -1.76 0.078 .9995541 1.000023

sp75\_703\_3\_pp\_c\_4lag | 1.000012 .0002349 0.05 0.958 .999552 1.000473

sp75\_703\_4\_pp\_c\_4lag | .9969683 .0009649 -3.14 0.002 .995079 .9988613

sp75\_807\_pp\_c\_4lag | 1.000055 .0000387 1.43 0.154 .9999793 1.000131

sp75\_810\_pp\_c\_4lag | 1.000197 .000189 1.04 0.297 .9998269 1.000568

sp75\_811\_pp\_c\_4lag | 1.000278 .0001814 1.54 0.125 .9999229 1.000634

sp75\_812\_pp\_c\_4lag | .9999153 .0005396 -0.16 0.875 .9988583 1.000973

sp75\_816\_pp\_c\_4lag | 1.000001 .0001195 0.01 0.996 .9997665 1.000235

sp75\_817\_pp\_c\_4lag | .9996141 .0011555 -0.33 0.738 .997352 1.001881

sp75\_906\_pp\_c\_4lag | .9986552 .0011054 -1.22 0.224 .996491 1.000824

mine\_time | 1.012006 .0063029 1.92 0.055 .9997273 1.024435

onsite\_insp\_hours | .9998525 .0000419 -3.52 0.000 .9997705 .9999345

|

state |

1 | .8286437 .1071433 -1.45 0.146 .6431434 1.067647

2 | 1.021082 .0561733 0.38 0.705 .9167126 1.137335

3 | .6695867 .0860186 -3.12 0.002 .5205435 .8613043

4 | 1.015436 .0691898 0.22 0.822 .8884921 1.160518

5 | .8286237 .0734557 -2.12 0.034 .6964664 .9858584

6 | .7639988 .037576 -5.47 0.000 .6937896 .8413129

7 | 1.0373 .2285941 0.17 0.868 .673475 1.59767

8 | .4724076 .0256341 -13.82 0.000 .4247451 .5254184

9 | .5552958 .028517 -11.45 0.000 .5021244 .6140977

10 | .8367502 .0920532 -1.62 0.105 .6744548 1.038099

11 | 1.548208 .2640517 2.56 0.010 1.108292 2.162741

12 | .9890633 .0760883 -0.14 0.886 .8506314 1.150024

13 | 1.532476 .1781862 3.67 0.000 1.220173 1.924712

14 | .4124773 .0736891 -4.96 0.000 .290625 .5854196

15 | .721377 .0413943 -5.69 0.000 .6446416 .8072467

17 | .6299849 .0399695 -7.28 0.000 .5563211 .7134027

|

time |

2000 | 1.030691 .0568703 0.55 0.584 .9250429 1.148405

2002 | .9156701 .0548711 -1.47 0.142 .8142001 1.029786

2003 | .8565225 .0611709 -2.17 0.030 .7446426 .9852121

2004 | .7770963 .047986 -4.08 0.000 .688514 .8770753

2005 | .6969953 .0424849 -5.92 0.000 .6185081 .7854424

2006 | .6907351 .0440138 -5.81 0.000 .6096391 .7826189

2007 | .6558209 .0442873 -6.25 0.000 .5745185 .7486288

2008 | .5735094 .0426431 -7.48 0.000 .4957352 .6634853

2009 | .5277211 .0400627 -8.42 0.000 .4547622 .6123851

2010 | .5210558 .0376769 -9.02 0.000 .4522045 .6003901

2011 | .4940018 .0359516 -9.69 0.000 .4283328 .5697388

2012 | .437234 .0363153 -9.96 0.000 .3715487 .5145317

2013 | .4302608 .037194 -9.76 0.000 .363203 .5096994

2014 | .4113849 .0347169 -10.53 0.000 .3486704 .4853796

2015 | .3777171 .0320953 -11.46 0.000 .3197706 .4461642

|

\_cons | .0001139 7.61e-06 -135.93 0.000 .0000999 .0001298

ln(hours) | 1 (exposure)

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

.

. pause "next"

.

. eststo clear

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

Fitting Poisson model:

Iteration 0: log pseudolikelihood = -352644.97

Iteration 1: log pseudolikelihood = -142420.53 (backed up)

Iteration 2: log pseudolikelihood = -105564.75

Iteration 3: log pseudolikelihood = -40204.099

Iteration 4: log pseudolikelihood = -22801.983

Iteration 5: log pseudolikelihood = -20679.63

Iteration 6: log pseudolikelihood = -20321.161

Iteration 7: log pseudolikelihood = -20299.083

Iteration 8: log pseudolikelihood = -20298.899

Iteration 9: log pseudolikelihood = -20298.899

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 = -16817.481

Iteration 1: log pseudolikelihood = -16663.709

Iteration 2: log pseudolikelihood = -16646.679

Iteration 3: log pseudolikelihood = -16646.602

Iteration 4: log pseudolikelihood = -16646.602

Negative binomial regression Number of obs = 6,253

Wald chi2(113) = .

Dispersion = mean Prob > chi2 = .

Log pseudolikelihood = -16646.602 Pseudo R2 = 0.0427

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

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

| Robust

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

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

sp48\_11\_pp\_c\_4lag | 1.000192 .0001707 1.13 0.259 .999858 1.000527

sp48\_24\_pp\_c\_4lag | 1.000513 .000051 10.05 0.000 1.000413 1.000613

sp48\_25\_pp\_c\_4lag | .9999584 .0002576 -0.16 0.872 .9994536 1.000463

sp48\_26\_pp\_c\_4lag | 1.000754 .0002827 2.67 0.008 1.0002 1.001308

sp48\_27\_pp\_c\_4lag | .9996975 .0002331 -1.30 0.194 .9992407 1.000154

sp48\_28\_pp\_c\_4lag | .9993773 .0003167 -1.97 0.049 .9987568 .9999981

sp48\_4\_pp\_c\_4lag | 1.002472 .0011232 2.20 0.028 1.000273 1.004676

sp48\_5\_pp\_c\_4lag | .9999961 .0004929 -0.01 0.994 .9990305 1.000963

sp48\_6\_pp\_c\_4lag | 1.000003 .0002214 0.01 0.990 .999569 1.000437

sp48\_7\_pp\_c\_4lag | 1.000146 .0001605 0.91 0.362 .9998316 1.000461

sp48\_8\_pp\_c\_4lag | 1.000252 .000319 0.79 0.429 .9996273 1.000878

sp75\_100\_pp\_c\_4lag | 1.00137 .0005479 2.50 0.012 1.000297 1.002445

sp75\_1002\_pp\_c\_4lag | .9998991 .0000794 -1.27 0.204 .9997436 1.000055

sp75\_1003\_pp\_c\_4lag | .9999289 .0000711 -1.00 0.317 .9997896 1.000068

sp75\_1003\_2\_pp\_c\_4lag | .9996703 .0001194 -2.76 0.006 .9994364 .9999042

sp75\_1311\_pp\_c\_4lag | .9995123 .0004085 -1.19 0.233 .9987119 1.000313

sp75\_1315\_pp\_c\_4lag | .9932678 .0038834 -1.73 0.084 .9856856 1.000908

sp75\_1316\_pp\_c\_4lag | .999325 .00058 -1.16 0.245 .9981888 1.000462

sp75\_1318\_pp\_c\_4lag | .4836565 .01863 -18.86 0.000 .4484867 .5215843

sp75\_1400\_pp\_c\_4lag | .9998723 .0002208 -0.58 0.563 .9994396 1.000305

sp75\_1400\_1\_pp\_c\_4lag | .9996132 .0007223 -0.54 0.592 .9981984 1.00103

sp75\_1403\_10\_pp\_c\_4lag | 1.0001 .0000442 2.27 0.023 1.000014 1.000187

sp75\_1403\_5\_pp\_c\_4lag | .9999246 .0000343 -2.20 0.028 .9998574 .9999918

sp75\_1403\_6\_pp\_c\_4lag | 1.000027 .0000316 0.84 0.400 .9999646 1.000089

sp75\_1403\_7\_pp\_c\_4lag | .9999973 .0001607 -0.02 0.987 .9996825 1.000312

sp75\_1403\_8\_pp\_c\_4lag | .99994 .0000298 -2.01 0.044 .9998816 .9999985

sp75\_1404\_pp\_c\_4lag | .9999002 .0008866 -0.11 0.910 .998164 1.001639

sp75\_1404\_1\_pp\_c\_4lag | .9994177 .0005048 -1.15 0.249 .9984288 1.000408

sp75\_1405\_pp\_c\_4lag | .9998778 .0000549 -2.22 0.026 .9997702 .9999855

sp75\_1405\_1\_pp\_c\_4lag | 1.000692 .0007371 0.94 0.347 .9992486 1.002138

sp75\_153\_pp\_c\_4lag | .9990679 .0008356 -1.11 0.265 .9974315 1.000707

sp75\_156\_pp\_c\_4lag | .9985643 .0007994 -1.79 0.073 .9969987 1.000132

sp75\_160\_pp\_c\_4lag | 1.006597 .002706 2.45 0.014 1.001307 1.011915

sp75\_1719\_2\_pp\_c\_4lag | .9997066 .0004834 -0.61 0.544 .9987597 1.000654

sp75\_1719\_4\_pp\_c\_4lag | 1.000002 .0000994 0.02 0.984 .9998072 1.000197

sp75\_1720\_pp\_c\_4lag | 1.000233 .0001315 1.77 0.077 .9999752 1.000491

sp75\_1725\_pp\_c\_4lag | 1.000007 .0000115 0.59 0.558 .9999842 1.000029

sp75\_1906\_pp\_c\_4lag | 1.000421 .0001817 2.32 0.020 1.000065 1.000777

sp75\_1916\_pp\_c\_4lag | 1.000118 .0001677 0.71 0.480 .9997897 1.000447

sp75\_203\_pp\_c\_4lag | 1.000019 .00004 0.46 0.642 .9999402 1.000097

sp75\_204\_pp\_c\_4lag | 1.000109 .0000548 2.00 0.046 1.000002 1.000217

sp75\_205\_pp\_c\_4lag | 1.002115 .0010075 2.10 0.036 1.000142 1.004091

sp75\_207\_pp\_c\_4lag | 1.000709 .0004069 1.74 0.081 .9999123 1.001507

sp75\_208\_pp\_c\_4lag | 1.000023 .0000603 0.39 0.697 .9999053 1.000142

sp75\_209\_pp\_c\_4lag | .9999259 .0002812 -0.26 0.792 .999375 1.000477

sp75\_212\_pp\_c\_4lag | 1.000489 .0002004 2.44 0.015 1.000096 1.000882

sp75\_213\_pp\_c\_4lag | 1.000913 .0002741 3.33 0.001 1.000376 1.00145

sp75\_215\_pp\_c\_4lag | .999709 .0013794 -0.21 0.833 .997009 1.002416

sp75\_332\_pp\_c\_4lag | .9996234 .0003939 -0.96 0.339 .9988516 1.000396

sp75\_334\_pp\_c\_4lag | 1.000034 .0001326 0.26 0.795 .9997746 1.000294

sp75\_337\_pp\_c\_4lag | .9997757 .0000966 -2.32 0.020 .9995863 .9999651

sp75\_340\_pp\_c\_4lag | .9999588 .0000364 -1.13 0.257 .9998874 1.00003

sp75\_343\_pp\_c\_4lag | 1.000268 .0002514 1.07 0.286 .9997756 1.000761

sp75\_373\_pp\_c\_4lag | 1.020143 .0011703 17.38 0.000 1.017852 1.02244

sp75\_388\_pp\_c\_4lag | 1.000096 .0002697 0.36 0.722 .9995675 1.000625

sp75\_389\_pp\_c\_4lag | .9997617 .0006725 -0.35 0.723 .9984445 1.001081

sp75\_500\_pp\_c\_4lag | 1.000109 .0002719 0.40 0.689 .9995762 1.000642

sp75\_500\_1\_pp\_c\_4lag | .9991591 .0013233 -0.64 0.525 .9965687 1.001756

sp75\_501\_pp\_c\_4lag | .9996084 .0004218 -0.93 0.353 .998782 1.000436

sp75\_501\_2\_pp\_c\_4lag | .9996437 .0004862 -0.73 0.464 .9986911 1.000597

sp75\_502\_pp\_c\_4lag | 1.001446 .0007052 2.05 0.040 1.000065 1.002829

sp75\_503\_pp\_c\_4lag | 1 9.66e-06 0.04 0.967 .9999815 1.000019

sp75\_505\_pp\_c\_4lag | 1.000399 .0005002 0.80 0.425 .9994194 1.00138

sp75\_506\_1\_pp\_c\_4lag | 1.000513 .0003112 1.65 0.099 .9999035 1.001124

sp75\_507\_pp\_c\_4lag | 1.000056 .0001698 0.33 0.740 .9997235 1.000389

sp75\_507\_1\_pp\_c\_4lag | 1.000008 .0000926 0.09 0.929 .9998268 1.00019

sp75\_508\_1\_pp\_c\_4lag | .9948334 .0008455 -6.10 0.000 .9931776 .9964919

sp75\_509\_pp\_c\_4lag | 1.000815 .0004903 1.66 0.096 .9998544 1.001777

sp75\_510\_pp\_c\_4lag | 1.000681 .0012775 0.53 0.594 .9981798 1.003188

sp75\_512\_1\_pp\_c\_4lag | 1.000209 .0008938 0.23 0.815 .9984593 1.001963

sp75\_523\_pp\_c\_4lag | .9998159 .000117 -1.57 0.116 .9995865 1.000045

sp75\_523\_3\_pp\_c\_4lag | .9999507 .0000321 -1.54 0.124 .9998879 1.000014

sp75\_524\_pp\_c\_4lag | 1.000519 .0003886 1.34 0.182 .9997575 1.001281

sp75\_602\_pp\_c\_4lag | .9999845 .0001517 -0.10 0.919 .9996873 1.000282

sp75\_603\_pp\_c\_4lag | 1.000306 .0001649 1.86 0.063 .9999829 1.000629

sp75\_604\_pp\_c\_4lag | 1.000021 .0000164 1.27 0.205 .9999887 1.000053

sp75\_605\_pp\_c\_4lag | 1.000044 .0000671 0.66 0.510 .9999128 1.000176

sp75\_606\_pp\_c\_4lag | .9999815 .0000357 -0.52 0.605 .9999114 1.000052

sp75\_607\_pp\_c\_4lag | .9997873 .0001041 -2.04 0.041 .9995833 .9999912

sp75\_703\_3\_pp\_c\_4lag | 1.000069 .0002202 0.31 0.753 .9996378 1.000501

sp75\_703\_4\_pp\_c\_4lag | .9969395 .0008687 -3.52 0.000 .9952382 .9986436

sp75\_807\_pp\_c\_4lag | 1.000047 .0000354 1.32 0.185 .9999775 1.000116

sp75\_810\_pp\_c\_4lag | 1.00025 .0001603 1.56 0.120 .9999354 1.000564

sp75\_811\_pp\_c\_4lag | 1.000215 .0001665 1.29 0.197 .9998884 1.000541

sp75\_812\_pp\_c\_4lag | .9999836 .0005323 -0.03 0.975 .9989408 1.001028

sp75\_816\_pp\_c\_4lag | .9999952 .0001055 -0.05 0.964 .9997883 1.000202

sp75\_817\_pp\_c\_4lag | .9996356 .0011034 -0.33 0.741 .9974753 1.001801

sp75\_906\_pp\_c\_4lag | .9984904 .0011089 -1.36 0.174 .9963194 1.000666

mine\_time | 1.009686 .0057398 1.70 0.090 .9984986 1.020999

onsite\_insp\_hours | .999856 .00004 -3.60 0.000 .9997775 .9999345

|

state |

1 | .849216 .0972838 -1.43 0.154 .6784329 1.062991

2 | 1.157287 .0593686 2.85 0.004 1.046585 1.279698

3 | .6583341 .0829592 -3.32 0.001 .5142605 .842771

4 | 1.019857 .0633436 0.32 0.752 .9029649 1.151881

5 | .8476143 .0748489 -1.87 0.061 .7129065 1.007776

6 | .7866091 .0358611 -5.26 0.000 .7193714 .8601314

7 | 1.021432 .2088662 0.10 0.917 .6841522 1.524988

8 | .48729 .0268251 -13.06 0.000 .4374508 .5428075

9 | .5888156 .0278115 -11.21 0.000 .5367531 .6459279

10 | .8683387 .0804931 -1.52 0.128 .7240768 1.041343

11 | 1.591079 .2563791 2.88 0.004 1.160201 2.181978

12 | 1.05276 .0736593 0.73 0.462 .917852 1.207497

13 | 1.504331 .1587753 3.87 0.000 1.223215 1.850051

14 | .4069763 .0723751 -5.06 0.000 .2872068 .5766914

15 | .7476059 .039994 -5.44 0.000 .6731887 .8302495

17 | .6513441 .0372025 -7.51 0.000 .5823617 .7284977

|

time |

2000 | 1.04877 .0457416 1.09 0.275 .9628426 1.142365

2002 | .9417206 .0458315 -1.23 0.217 .8560436 1.035973

2003 | .8509185 .0445953 -3.08 0.002 .7678526 .9429705

2004 | .8016581 .0391487 -4.53 0.000 .7284858 .8821801

2005 | .7254868 .0362817 -6.42 0.000 .65775 .8001994

2006 | .7170653 .0372246 -6.41 0.000 .6476953 .7938651

2007 | .6911383 .0390443 -6.54 0.000 .6186973 .7720612

2008 | .5946919 .0365208 -8.46 0.000 .5272524 .6707574

2009 | .5354993 .033452 -10.00 0.000 .4737894 .6052467

2010 | .5331185 .0328662 -10.20 0.000 .4724415 .6015883

2011 | .5006167 .0306449 -11.30 0.000 .444017 .5644313

2012 | .4339608 .0295946 -12.24 0.000 .3796658 .4960203

2013 | .416444 .0296356 -12.31 0.000 .3622282 .4787745

2014 | .4147953 .0302124 -12.08 0.000 .3596126 .4784459

2015 | .3886739 .0289219 -12.70 0.000 .3359277 .449702

|

\_cons | .0001097 5.80e-06 -172.41 0.000 .0000989 .0001216

ln(hours) | 1 (exposure)

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

/lnalpha | -1.238289 .0574009 -1.350793 -1.125785

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

alpha | .2898798 .0166393 .2590349 .3243976

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

(est1 stored)

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

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

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

. est store nbin

.

. pause "next"

.

. // test for over-dispersion

. lrtest pois nbin, stats force

Likelihood-ratio test LR chi2(0) = -7304.59

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

Akaike's information criterion and Bayesian information criterion

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

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

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

nbin | 6,253 -17389.65 -16646.6 115 33523.2 34298.4

pois | 6,253 -24975.69 -20298.9 115 40827.8 41602.99

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

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

.

. pause "next"

.

. // final model + diagnostics/assessment

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

. predict cpp3\_yhat

(option n assumed; predicted number of events)

. gen cpp3\_res = dv - cpp3\_yhat

.

. summ dv cpp3\_yhat

Variable | Obs Mean Std. Dev. Min Max

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

dv | 6,253 9.976651 14.85334 0 200

cpp3\_yhat | 6,253 10.41629 14.93188 1.26e-08 234.8276

. /\*

> pause "next"

>

> scatter dv cpp3\_yhat

>

> pause "next"

>

> scatter cpp3\_res dv

>

> pause "next"

>

> scatter cpp3\_res cpp3\_yhat

> \*/

. pause "complete: C.PP.3"