. // 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 = -39029.56

Iteration 1: log pseudolikelihood = -36081.958

Iteration 2: log pseudolikelihood = -36061.17

Iteration 3: log pseudolikelihood = -36061.11

Iteration 4: log pseudolikelihood = -36061.096

Iteration 5: log pseudolikelihood = -36061.093

Iteration 6: log pseudolikelihood = -36061.092

Iteration 7: log pseudolikelihood = -36061.092

Iteration 8: log pseudolikelihood = -36061.092

Generalized linear models No. of obs = 19,291

Optimization : ML Residual df = 19,124

Scale parameter = 1

Deviance = 35775.70896 (1/df) Deviance = 1.870723

Pearson = 838661.6566 (1/df) Pearson = 43.85388

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

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

AIC = 3.755958

Log pseudolikelihood = -36061.09185 BIC = -152928.3

(Std. Err. adjusted for 1,288 clusters in mineid)

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| Robust

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

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

sp48\_11\_pp\_c\_lag\_all | 1.000243 .0004304 0.56 0.573 .9993994 1.001087

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

sp48\_25\_pp\_c\_lag\_all | .997414 .0009331 -2.77 0.006 .9955867 .9992446

sp48\_26\_pp\_c\_lag\_all | 1.001022 .0010298 0.99 0.321 .9990056 1.003042

sp48\_27\_pp\_c\_lag\_all | 1.000086 .0004922 0.18 0.861 .999122 1.001051

sp48\_28\_pp\_c\_lag\_all | .9982601 .0007554 -2.30 0.021 .9967806 .9997419

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

sp48\_5\_pp\_c\_lag\_all | 1.000248 .0014522 0.17 0.864 .9974057 1.003098

sp48\_6\_pp\_c\_lag\_all | 1.000376 .0004387 0.86 0.391 .9995171 1.001237

sp48\_7\_pp\_c\_lag\_all | .9994193 .0003733 -1.56 0.120 .9986878 1.000151

sp48\_8\_pp\_c\_lag\_all | 1.000408 .0007271 0.56 0.574 .9989842 1.001835

sp75\_100\_pp\_c\_lag\_all | 1.002579 .0014472 1.78 0.074 .9997469 1.00542

sp75\_1002\_pp\_c\_lag\_all | 1.000527 .0001573 3.35 0.001 1.000219 1.000836

sp75\_1003\_pp\_c\_lag\_all | 1.000154 .0000723 2.13 0.033 1.000012 1.000296

sp75\_1003\_2\_pp\_c\_lag\_all | .999706 .0005497 -0.53 0.593 .9986291 1.000784

sp75\_1311\_pp\_c\_lag\_all | 1.000021 .0006986 0.03 0.976 .9986529 1.001391

sp75\_1315\_pp\_c\_lag\_all | 1.001707 .005326 0.32 0.748 .9913219 1.0122

sp75\_1316\_pp\_c\_lag\_all | .9983197 .0008889 -1.89 0.059 .9965791 1.000063

sp75\_1318\_pp\_c\_lag\_all | .983039 .0018415 -9.13 0.000 .9794362 .9866549

sp75\_1400\_pp\_c\_lag\_all | 1.000399 .0003662 1.09 0.276 .9996811 1.001116

sp75\_1400\_1\_pp\_c\_lag\_all | .9977735 .00149 -1.49 0.136 .9948574 1.000698

sp75\_1403\_10\_pp\_c\_lag\_all | 1.000242 .0000904 2.68 0.007 1.000065 1.000419

sp75\_1403\_5\_pp\_c\_lag\_all | .9999167 .0000424 -1.96 0.050 .9998335 .9999999

sp75\_1403\_6\_pp\_c\_lag\_all | 1.000103 .0000473 2.17 0.030 1.00001 1.000195

sp75\_1403\_7\_pp\_c\_lag\_all | .9997171 .0003208 -0.88 0.378 .9990886 1.000346

sp75\_1403\_8\_pp\_c\_lag\_all | .9998865 .000062 -1.83 0.067 .9997649 1.000008

sp75\_1404\_pp\_c\_lag\_all | .9992528 .001189 -0.63 0.530 .9969252 1.001586

sp75\_1404\_1\_pp\_c\_lag\_all | .9932945 .0019087 -3.50 0.000 .9895606 .9970425

sp75\_1405\_pp\_c\_lag\_all | .9998499 .000127 -1.18 0.238 .999601 1.000099

sp75\_1405\_1\_pp\_c\_lag\_all | .9996042 .0015424 -0.26 0.797 .9965858 1.002632

sp75\_153\_pp\_c\_lag\_all | 1.004066 .0018318 2.22 0.026 1.000482 1.007663

sp75\_156\_pp\_c\_lag\_all | .9942017 .0035652 -1.62 0.105 .9872386 1.001214

sp75\_160\_pp\_c\_lag\_all | 1.012332 .0084033 1.48 0.140 .9959949 1.028937

sp75\_1719\_2\_pp\_c\_lag\_all | .9990678 .0014197 -0.66 0.512 .996289 1.001854

sp75\_1719\_4\_pp\_c\_lag\_all | .9999137 .0002587 -0.33 0.739 .9994069 1.000421

sp75\_1720\_pp\_c\_lag\_all | 1.000314 .0002766 1.14 0.256 .9997724 1.000857

sp75\_1725\_pp\_c\_lag\_all | .9999735 .0000194 -1.36 0.173 .9999355 1.000012

sp75\_1906\_pp\_c\_lag\_all | 1.000055 .0003388 0.16 0.870 .9993917 1.00072

sp75\_1916\_pp\_c\_lag\_all | .9996897 .0004328 -0.72 0.473 .9988418 1.000538

sp75\_203\_pp\_c\_lag\_all | 1.000021 .0000775 0.28 0.783 .9998695 1.000173

sp75\_204\_pp\_c\_lag\_all | 1.000199 .0001171 1.70 0.089 .9999695 1.000429

sp75\_205\_pp\_c\_lag\_all | 1.004366 .0032197 1.36 0.174 .998075 1.010696

sp75\_207\_pp\_c\_lag\_all | 1.003471 .0018116 1.92 0.055 .999927 1.007029

sp75\_208\_pp\_c\_lag\_all | 1.000229 .0001215 1.89 0.059 .9999914 1.000468

sp75\_209\_pp\_c\_lag\_all | .9994134 .0005454 -1.08 0.282 .9983451 1.000483

sp75\_212\_pp\_c\_lag\_all | 1.000382 .0002762 1.38 0.167 .9998408 1.000923

sp75\_213\_pp\_c\_lag\_all | 1.002576 .0008938 2.89 0.004 1.000825 1.004329

sp75\_215\_pp\_c\_lag\_all | .9980555 .001985 -0.98 0.328 .9941726 1.001954

sp75\_332\_pp\_c\_lag\_all | .99775 .0008013 -2.80 0.005 .9961808 .9993217

sp75\_334\_pp\_c\_lag\_all | .9995585 .0003146 -1.40 0.161 .9989421 1.000175

sp75\_337\_pp\_c\_lag\_all | .9995507 .0002312 -1.94 0.052 .9990977 1.000004

sp75\_340\_pp\_c\_lag\_all | .9998496 .0000568 -2.65 0.008 .9997383 .999961

sp75\_343\_pp\_c\_lag\_all | .9998045 .0006615 -0.30 0.768 .9985089 1.001102

sp75\_373\_pp\_c\_lag\_all | 1.017271 .0070699 2.46 0.014 1.003509 1.031223

sp75\_388\_pp\_c\_lag\_all | .9992605 .0006307 -1.17 0.241 .9980251 1.000497

sp75\_389\_pp\_c\_lag\_all | .9987097 .0015124 -0.85 0.394 .9957499 1.001678

sp75\_500\_pp\_c\_lag\_all | 1.000593 .0006451 0.92 0.358 .9993296 1.001858

sp75\_500\_1\_pp\_c\_lag\_all | .9941644 .0035331 -1.65 0.100 .9872636 1.001113

sp75\_501\_pp\_c\_lag\_all | 1.00219 .0009892 2.22 0.027 1.000253 1.00413

sp75\_501\_2\_pp\_c\_lag\_all | .9964705 .001579 -2.23 0.026 .9933805 .9995702

sp75\_502\_pp\_c\_lag\_all | 1.004255 .0018149 2.35 0.019 1.000704 1.007818

sp75\_503\_pp\_c\_lag\_all | .999979 .0000165 -1.27 0.204 .9999466 1.000011

sp75\_505\_pp\_c\_lag\_all | 1.001148 .0012621 0.91 0.363 .9986777 1.003625

sp75\_506\_1\_pp\_c\_lag\_all | 1.002869 .0005898 4.87 0.000 1.001714 1.004025

sp75\_507\_pp\_c\_lag\_all | 1.000158 .0003538 0.45 0.655 .9994649 1.000852

sp75\_507\_1\_pp\_c\_lag\_all | 1.000099 .0001546 0.64 0.520 .9997964 1.000402

sp75\_508\_1\_pp\_c\_lag\_all | .9952818 .0017591 -2.68 0.007 .9918401 .9987355

sp75\_509\_pp\_c\_lag\_all | 1.001386 .0012245 1.13 0.257 .998989 1.003789

sp75\_510\_pp\_c\_lag\_all | 1.007929 .006698 1.19 0.235 .9948858 1.021142

sp75\_512\_1\_pp\_c\_lag\_all | 1.000157 .0024201 0.06 0.948 .9954244 1.004911

sp75\_523\_pp\_c\_lag\_all | .9999702 .0002504 -0.12 0.905 .9994795 1.000461

sp75\_523\_3\_pp\_c\_lag\_all | .9999753 .0000614 -0.40 0.687 .9998549 1.000096

sp75\_524\_pp\_c\_lag\_all | 1.002819 .0011855 2.38 0.017 1.000499 1.005146

sp75\_602\_pp\_c\_lag\_all | .9998998 .0003316 -0.30 0.763 .99925 1.00055

sp75\_603\_pp\_c\_lag\_all | .9992872 .000473 -1.51 0.132 .9983605 1.000215

sp75\_604\_pp\_c\_lag\_all | .999934 .0000242 -2.72 0.006 .9998865 .9999815

sp75\_605\_pp\_c\_lag\_all | 1.000081 .0001717 0.47 0.636 .9997447 1.000418

sp75\_606\_pp\_c\_lag\_all | 1.000055 .0000524 1.05 0.292 .9999524 1.000158

sp75\_607\_pp\_c\_lag\_all | .9996144 .0004161 -0.93 0.354 .9987992 1.00043

sp75\_703\_3\_pp\_c\_lag\_all | 1.002261 .0008869 2.55 0.011 1.000524 1.004001

sp75\_703\_4\_pp\_c\_lag\_all | 1.007475 .0028965 2.59 0.010 1.001814 1.013168

sp75\_807\_pp\_c\_lag\_all | 1.000119 .0000593 2.00 0.045 1.000002 1.000235

sp75\_810\_pp\_c\_lag\_all | 1.000284 .0002978 0.96 0.340 .9997008 1.000868

sp75\_811\_pp\_c\_lag\_all | 1.000016 .0003036 0.05 0.957 .9994215 1.000611

sp75\_812\_pp\_c\_lag\_all | .998201 .0013231 -1.36 0.174 .9956112 1.000798

sp75\_816\_pp\_c\_lag\_all | 1.000096 .0002186 0.44 0.659 .999668 1.000525

sp75\_817\_pp\_c\_lag\_all | .9980943 .0016348 -1.16 0.244 .9948952 1.001304

sp75\_906\_pp\_c\_lag\_all | .9938017 .0029912 -2.07 0.039 .9879564 .9996817

mine\_time | 1.002829 .0022283 1.27 0.204 .9984715 1.007206

onsite\_insp\_hours | .9997327 .0001158 -2.31 0.021 .9995058 .9999596

|

state |

AL | .9501382 .0897086 -0.54 0.588 .7896223 1.143284

CO | .6920046 .0709334 -3.59 0.000 .5660532 .8459813

IL | 1.251159 .1049479 2.67 0.008 1.061484 1.474728

IN | 1.167707 .2033139 0.89 0.373 .8300952 1.64263

MD | 1.183757 .2428267 0.82 0.411 .79187 1.769585

MT | .0000297 .0000298 -10.40 0.000 4.17e-06 .0002122

NM | .7988131 .0631225 -2.84 0.004 .6841998 .9326258

OH | 1.141789 .1005097 1.51 0.132 .9608513 1.3568

OK | 2.188454 .3651555 4.69 0.000 1.57801 3.035044

PA | .9860007 .1113024 -0.12 0.901 .7902987 1.230164

TN | 1.50974 .1716087 3.62 0.000 1.208226 1.886498

UT | .4463126 .0541155 -6.65 0.000 .3519094 .5660405

VA | .8944782 .0625878 -1.59 0.111 .7798483 1.025958

WV | 1.064672 .0619704 1.08 0.282 .9498842 1.193331

WY | .8435157 .1088438 -1.32 0.187 .6550247 1.086247

|

time |

2000.25 | 1.120112 .0513358 2.47 0.013 1.023882 1.225386

2000.5 | 1.26619 .0561446 5.32 0.000 1.160794 1.381154

2000.75 | .9338224 .0508651 -1.26 0.209 .8392658 1.039032

2001 | .92975 .0517332 -1.31 0.191 .8336879 1.036881

2001.25 | .9806207 .0561998 -0.34 0.733 .8764322 1.097195

2001.5 | 1.207699 .0816595 2.79 0.005 1.057801 1.378839

2001.75 | .9244608 .057945 -1.25 0.210 .8175896 1.045302

2002 | .9701699 .0589058 -0.50 0.618 .8613217 1.092774

2002.25 | .9494966 .0569463 -0.86 0.388 .8441942 1.067934

2002.5 | 1.012282 .0699852 0.18 0.860 .8840012 1.159178

2002.75 | .9218381 .0645803 -1.16 0.245 .8035685 1.057515

2003 | .7992561 .0581234 -3.08 0.002 .6930826 .9216943

2003.25 | .8694513 .0678583 -1.79 0.073 .7461245 1.013163

2003.5 | .9328208 .0604484 -1.07 0.283 .8215593 1.05915

2003.75 | .7384468 .050629 -4.42 0.000 .6455942 .8446539

2004 | .7398033 .0528377 -4.22 0.000 .6431649 .8509621

2004.25 | .8137281 .0578643 -2.90 0.004 .7078647 .9354237

2004.5 | .8884767 .0610005 -1.72 0.085 .7766132 1.016453

2004.75 | .7069901 .0527211 -4.65 0.000 .6108551 .8182546

2005 | .6902107 .0505543 -5.06 0.000 .5979098 .7967602

2005.25 | .7498515 .0592035 -3.65 0.000 .6423471 .875348

2005.5 | .8560581 .0651543 -2.04 0.041 .7374261 .9937747

2005.75 | .7100465 .0532885 -4.56 0.000 .6129213 .8225624

2006 | .7047833 .0544434 -4.53 0.000 .6057614 .8199918

2006.25 | .6577228 .0491298 -5.61 0.000 .5681471 .7614213

2006.5 | .8211593 .0616557 -2.62 0.009 .7087875 .9513466

2006.75 | .6606959 .0483179 -5.67 0.000 .5724685 .7625206

2007 | .6717287 .0531369 -5.03 0.000 .5752543 .7843826

2007.25 | .6389668 .0602363 -4.75 0.000 .531171 .7686388

2007.5 | .7984127 .0636621 -2.82 0.005 .6828984 .9334665

2007.75 | .7344134 .0596214 -3.80 0.000 .6263802 .8610792

2008 | .664248 .0525509 -5.17 0.000 .5688384 .7756604

2008.25 | .6481336 .0567163 -4.96 0.000 .545982 .7693975

2008.5 | .7944261 .0735324 -2.49 0.013 .6626221 .9524476

2008.75 | .6354924 .0505769 -5.70 0.000 .5437082 .7427708

2009 | .6492043 .0504176 -5.56 0.000 .5575406 .7559381

2009.25 | .6055362 .0495102 -6.14 0.000 .515874 .7107823

2009.5 | .6428653 .0521796 -5.44 0.000 .5483152 .7537195

2009.75 | .5505376 .0398228 -8.25 0.000 .4777666 .6343927

2010 | .5150913 .0436083 -7.84 0.000 .4363353 .6080623

2010.25 | .5539848 .0509942 -6.42 0.000 .4625352 .6635152

2010.5 | .6436337 .0506844 -5.60 0.000 .5515807 .7510494

2010.75 | .5443927 .0427629 -7.74 0.000 .4667122 .6350025

2011 | .5381338 .043566 -7.65 0.000 .4591759 .6306689

2011.25 | .4941554 .0387394 -8.99 0.000 .4237732 .5762269

2011.5 | .5693575 .0447932 -7.16 0.000 .4879982 .664281

2011.75 | .4493173 .0344978 -10.42 0.000 .3865444 .5222843

2012 | .4823833 .0389662 -9.02 0.000 .4117498 .5651336

2012.25 | .4538685 .0372301 -9.63 0.000 .3864625 .5330313

2012.5 | .5246489 .0476964 -7.10 0.000 .4390208 .6269782

2012.75 | .4042499 .0380357 -9.63 0.000 .3361714 .486115

2013 | .4394055 .0425929 -8.48 0.000 .3633758 .5313431

2013.25 | .4222792 .0445531 -8.17 0.000 .343394 .5192862

2013.5 | .4895787 .0522875 -6.69 0.000 .3971123 .6035757

2013.75 | .3850901 .0388309 -9.46 0.000 .3160318 .4692389

2014 | .423447 .0427546 -8.51 0.000 .3474201 .5161112

2014.25 | .4303046 .0475786 -7.63 0.000 .3464646 .5344327

2014.5 | .4664969 .0436832 -8.14 0.000 .3882769 .5604747

2014.75 | .4286424 .0432816 -8.39 0.000 .3516789 .5224491

2015 | .3920929 .0410553 -8.94 0.000 .3193459 .4814116

2015.25 | .3480793 .0353945 -10.38 0.000 .2851831 .4248472

2015.5 | .4677545 .0474848 -7.48 0.000 .3833602 .5707277

2015.75 | .3508667 .0420018 -8.75 0.000 .2774891 .4436478

2016 | .3866499 .0480223 -7.65 0.000 .3031083 .4932168

|

\_cons | .000086 4.87e-06 -165.29 0.000 .000077 .0000961

ln(hours) | 1 (exposure)

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

.

. 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 = 35775.71

Prob > chi2(19127) = 0.0000

Pearson goodness-of-fit = 838683.9

Prob > chi2(19127) = 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 = -35441.327

Iteration 1: log pseudolikelihood = -35008.013

Iteration 2: log pseudolikelihood = -35006.283

Iteration 3: log pseudolikelihood = -35006.25

Iteration 4: log pseudolikelihood = -35006.246

Iteration 5: log pseudolikelihood = -35006.246

Iteration 6: log pseudolikelihood = -35006.245

Iteration 7: log pseudolikelihood = -35006.245

Generalized linear models No. of obs = 19,291

Optimization : ML Residual df = 19,125

Scale parameter = 1

Deviance = 14823.81785 (1/df) Deviance = .7751016

Pearson = 544697.6914 (1/df) Pearson = 28.48093

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

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

AIC = 3.646493

Log pseudolikelihood = -35006.24545 BIC = -173890.1

(Std. Err. adjusted for 1,288 clusters in mineid)

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| Robust

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

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

sp48\_11\_pp\_c\_lag\_all | 1.000751 .0005073 1.48 0.139 .9997572 1.001746

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

sp48\_25\_pp\_c\_lag\_all | .9971013 .0009362 -3.09 0.002 .995268 .9989379

sp48\_26\_pp\_c\_lag\_all | 1.000961 .0012446 0.77 0.440 .9985243 1.003403

sp48\_27\_pp\_c\_lag\_all | .9995601 .0006289 -0.70 0.484 .9983282 1.000794

sp48\_28\_pp\_c\_lag\_all | .9987895 .0008412 -1.44 0.150 .9971421 1.00044

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

sp48\_5\_pp\_c\_lag\_all | 1.00052 .0015643 0.33 0.739 .9974591 1.003591

sp48\_6\_pp\_c\_lag\_all | 1.000219 .0004726 0.46 0.643 .9992932 1.001146

sp48\_7\_pp\_c\_lag\_all | .9989809 .0005035 -2.02 0.043 .9979946 .9999681

sp48\_8\_pp\_c\_lag\_all | 1.000473 .0010532 0.45 0.653 .9984112 1.00254

sp75\_100\_pp\_c\_lag\_all | 1.003403 .0019118 1.78 0.075 .9996625 1.007157

sp75\_1002\_pp\_c\_lag\_all | 1.000565 .00025 2.26 0.024 1.000075 1.001055

sp75\_1003\_pp\_c\_lag\_all | 1.000246 .0001063 2.31 0.021 1.000037 1.000454

sp75\_1003\_2\_pp\_c\_lag\_all | .9995274 .000787 -0.60 0.548 .9979861 1.001071

sp75\_1311\_pp\_c\_lag\_all | 1.001235 .0009225 1.34 0.180 .9994283 1.003044

sp75\_1315\_pp\_c\_lag\_all | .9959636 .0068238 -0.59 0.555 .9826786 1.009428

sp75\_1316\_pp\_c\_lag\_all | .997736 .0011837 -1.91 0.056 .9954186 1.000059

sp75\_1318\_pp\_c\_lag\_all | .9862657 .0017652 -7.73 0.000 .982812 .9897315

sp75\_1400\_pp\_c\_lag\_all | 1.000645 .0004025 1.60 0.109 .999856 1.001434

sp75\_1400\_1\_pp\_c\_lag\_all | .9974225 .0019327 -1.33 0.183 .9936417 1.001218

sp75\_1403\_10\_pp\_c\_lag\_all | 1.000426 .0001102 3.87 0.000 1.00021 1.000642

sp75\_1403\_5\_pp\_c\_lag\_all | .9998825 .0000581 -2.02 0.043 .9997687 .9999964

sp75\_1403\_6\_pp\_c\_lag\_all | 1.000076 .0000548 1.39 0.164 .9999689 1.000184

sp75\_1403\_7\_pp\_c\_lag\_all | .9996942 .0004105 -0.74 0.456 .9988898 1.000499

sp75\_1403\_8\_pp\_c\_lag\_all | .9999117 .0000708 -1.25 0.213 .999773 1.000051

sp75\_1404\_pp\_c\_lag\_all | .9998954 .0019347 -0.05 0.957 .9961107 1.003694

sp75\_1404\_1\_pp\_c\_lag\_all | .9915616 .0027727 -3.03 0.002 .9861421 .9970109

sp75\_1405\_pp\_c\_lag\_all | .9999573 .0001565 -0.27 0.785 .9996506 1.000264

sp75\_1405\_1\_pp\_c\_lag\_all | .9996531 .0022531 -0.15 0.878 .9952469 1.004079

sp75\_153\_pp\_c\_lag\_all | 1.004601 .0023774 1.94 0.052 .9999524 1.009272

sp75\_156\_pp\_c\_lag\_all | .9898431 .003097 -3.26 0.001 .9837916 .9959318

sp75\_160\_pp\_c\_lag\_all | 1.018416 .0090864 2.05 0.041 1.000762 1.036382

sp75\_1719\_2\_pp\_c\_lag\_all | 1.000776 .0020803 0.37 0.709 .9967066 1.004861

sp75\_1719\_4\_pp\_c\_lag\_all | .9997415 .0003845 -0.67 0.501 .9989881 1.000495

sp75\_1720\_pp\_c\_lag\_all | 1.000589 .00034 1.73 0.083 .9999227 1.001255

sp75\_1725\_pp\_c\_lag\_all | .9999598 .0000255 -1.58 0.114 .9999099 1.00001

sp75\_1906\_pp\_c\_lag\_all | 1.000391 .0003778 1.03 0.301 .9996504 1.001131

sp75\_1916\_pp\_c\_lag\_all | .9989562 .000497 -2.10 0.036 .9979826 .9999307

sp75\_203\_pp\_c\_lag\_all | .9999005 .0000957 -1.04 0.299 .9997129 1.000088

sp75\_204\_pp\_c\_lag\_all | 1.000177 .0001533 1.16 0.248 .9998767 1.000478

sp75\_205\_pp\_c\_lag\_all | 1.008367 .004087 2.06 0.040 1.000389 1.01641

sp75\_207\_pp\_c\_lag\_all | 1.005354 .004534 1.18 0.236 .9965067 1.01428

sp75\_208\_pp\_c\_lag\_all | 1.000299 .0001375 2.17 0.030 1.000029 1.000568

sp75\_209\_pp\_c\_lag\_all | 1.000155 .0006962 0.22 0.824 .9987916 1.001521

sp75\_212\_pp\_c\_lag\_all | 1.000294 .0003062 0.96 0.337 .9996943 1.000894

sp75\_213\_pp\_c\_lag\_all | 1.001776 .0018463 0.96 0.336 .9981636 1.005401

sp75\_215\_pp\_c\_lag\_all | .9959591 .0036298 -1.11 0.267 .9888701 1.003099

sp75\_332\_pp\_c\_lag\_all | .9972252 .0010329 -2.68 0.007 .9952029 .9992516

sp75\_334\_pp\_c\_lag\_all | .9992417 .0003829 -1.98 0.048 .9984916 .9999924

sp75\_337\_pp\_c\_lag\_all | .9996873 .0003219 -0.97 0.331 .9990566 1.000318

sp75\_340\_pp\_c\_lag\_all | .9998059 .0000658 -2.95 0.003 .9996771 .9999348

sp75\_343\_pp\_c\_lag\_all | .9992177 .0008175 -0.96 0.339 .9976167 1.000821

sp75\_373\_pp\_c\_lag\_all | 1.016291 .0072818 2.26 0.024 1.002119 1.030664

sp75\_388\_pp\_c\_lag\_all | 1.000209 .0006998 0.30 0.765 .9988382 1.001581

sp75\_389\_pp\_c\_lag\_all | .9981372 .0013459 -1.38 0.167 .9955028 1.000779

sp75\_500\_pp\_c\_lag\_all | 1.001222 .0007472 1.64 0.102 .999758 1.002687

sp75\_500\_1\_pp\_c\_lag\_all | .9989082 .0042166 -0.26 0.796 .990678 1.007207

sp75\_501\_pp\_c\_lag\_all | 1.00142 .0012077 1.18 0.239 .9990553 1.003789

sp75\_501\_2\_pp\_c\_lag\_all | .9965665 .0013765 -2.49 0.013 .9938721 .9992681

sp75\_502\_pp\_c\_lag\_all | 1.003479 .0025594 1.36 0.173 .9984746 1.008508

sp75\_503\_pp\_c\_lag\_all | .999971 .0000179 -1.62 0.105 .999936 1.000006

sp75\_505\_pp\_c\_lag\_all | 1.002309 .0016092 1.44 0.151 .9991604 1.005468

sp75\_506\_1\_pp\_c\_lag\_all | 1.002293 .0007894 2.91 0.004 1.000747 1.003841

sp75\_507\_pp\_c\_lag\_all | 1.000167 .0004581 0.36 0.715 .9992696 1.001065

sp75\_507\_1\_pp\_c\_lag\_all | 1.000149 .0002168 0.68 0.493 .9997236 1.000574

sp75\_508\_1\_pp\_c\_lag\_all | .995566 .0021583 -2.05 0.040 .9913447 .9998052

sp75\_509\_pp\_c\_lag\_all | 1.001172 .0016028 0.73 0.464 .9980356 1.004318

sp75\_510\_pp\_c\_lag\_all | 1.005904 .006872 0.86 0.389 .9925244 1.019463

sp75\_512\_1\_pp\_c\_lag\_all | .9985991 .0027248 -0.51 0.607 .9932729 1.003954

sp75\_523\_pp\_c\_lag\_all | .9997986 .0002957 -0.68 0.496 .9992193 1.000378

sp75\_523\_3\_pp\_c\_lag\_all | .9999617 .0000714 -0.54 0.592 .9998217 1.000102

sp75\_524\_pp\_c\_lag\_all | 1.002255 .001875 1.20 0.229 .9985869 1.005937

sp75\_602\_pp\_c\_lag\_all | 1.000273 .0004415 0.62 0.536 .999408 1.001139

sp75\_603\_pp\_c\_lag\_all | .9992643 .0004935 -1.49 0.136 .9982975 1.000232

sp75\_604\_pp\_c\_lag\_all | .9999646 .0000291 -1.22 0.224 .9999075 1.000022

sp75\_605\_pp\_c\_lag\_all | 1.000289 .0002251 1.28 0.200 .9998476 1.00073

sp75\_606\_pp\_c\_lag\_all | 1.000064 .0000594 1.08 0.282 .9999475 1.00018

sp75\_607\_pp\_c\_lag\_all | .9992689 .0004654 -1.57 0.116 .998357 1.000182

sp75\_703\_3\_pp\_c\_lag\_all | 1.00232 .0009879 2.35 0.019 1.000386 1.004258

sp75\_703\_4\_pp\_c\_lag\_all | 1.014093 .0039083 3.63 0.000 1.006461 1.021782

sp75\_807\_pp\_c\_lag\_all | 1.000187 .0000801 2.33 0.020 1.00003 1.000344

sp75\_810\_pp\_c\_lag\_all | 1.000244 .0003238 0.75 0.452 .9996093 1.000878

sp75\_811\_pp\_c\_lag\_all | 1.000118 .0003662 0.32 0.747 .9994007 1.000836

sp75\_812\_pp\_c\_lag\_all | .9962555 .0013984 -2.67 0.008 .9935186 .999

sp75\_816\_pp\_c\_lag\_all | .9995921 .0002587 -1.58 0.115 .9990853 1.000099

sp75\_817\_pp\_c\_lag\_all | .9978818 .0022667 -0.93 0.351 .9934489 1.002334

sp75\_906\_pp\_c\_lag\_all | .9966039 .0025492 -1.33 0.184 .99162 1.001613

mine\_time | 1.003007 .0020919 1.44 0.150 .9989153 1.007116

onsite\_insp\_hours | .9996363 .0001214 -2.99 0.003 .9993983 .9998743

|

state |

AL | 1.053851 .1434305 0.39 0.700 .8071045 1.376034

CO | .8518169 .0890256 -1.53 0.125 .6940407 1.04546

IL | 1.397565 .1073368 4.36 0.000 1.202257 1.624601

IN | 1.160904 .1476816 1.17 0.241 .9047168 1.489635

MD | 1.448467 .37813 1.42 0.156 .8683562 2.416124

MT | .0000397 .0000398 -10.11 0.000 5.57e-06 .0002834

NM | .9394835 .1305782 -0.45 0.653 .7154532 1.233665

OH | 1.124206 .1427373 0.92 0.356 .8765394 1.441852

OK | 2.512665 .2696367 8.59 0.000 2.036063 3.100829

PA | 1.373784 .1297203 3.36 0.001 1.141677 1.653079

TN | 1.611457 .1977592 3.89 0.000 1.266947 2.049645

UT | .4964031 .0742345 -4.68 0.000 .3702899 .6654681

VA | .967924 .0573329 -0.55 0.582 .8618311 1.087077

WV | 1.304023 .0656117 5.28 0.000 1.181564 1.439174

WY | 1.096937 .1775448 0.57 0.568 .7987492 1.506444

|

time |

2000.25 | 1.187208 .0716739 2.84 0.004 1.054723 1.336335

2000.5 | 1.283777 .0807991 3.97 0.000 1.134792 1.452322

2000.75 | .8483645 .0567595 -2.46 0.014 .7441032 .9672345

2001 | .8892661 .0611587 -1.71 0.088 .777125 1.017589

2001.25 | 1.010102 .0792034 0.13 0.898 .8662069 1.177902

2001.5 | 1.17807 .0844827 2.29 0.022 1.023597 1.355854

2001.75 | .930046 .0683155 -0.99 0.323 .8053419 1.07406

2002 | 1.085888 .1396494 0.64 0.522 .8439505 1.397181

2002.25 | .9873837 .072598 -0.17 0.863 .8548716 1.140436

2002.5 | 1.007682 .071176 0.11 0.914 .8774053 1.157302

2002.75 | .8236732 .0615837 -2.59 0.009 .7113987 .9536672

2003 | .8246357 .0690246 -2.30 0.021 .6998644 .9716512

2003.25 | .9195087 .086644 -0.89 0.373 .7644486 1.106021

2003.5 | .9423169 .0693848 -0.81 0.420 .8156827 1.088611

2003.75 | .6956569 .0589156 -4.28 0.000 .5892591 .821266

2004 | .731896 .0617007 -3.70 0.000 .6204273 .8633917

2004.25 | .7817419 .0614843 -3.13 0.002 .6700638 .9120333

2004.5 | .8211646 .0645911 -2.50 0.012 .7038441 .9580407

2004.75 | .6432336 .0540333 -5.25 0.000 .545589 .7583537

2005 | .6838825 .0589076 -4.41 0.000 .5776458 .8096576

2005.25 | .6861133 .0568822 -4.54 0.000 .5832127 .8071694

2005.5 | .8125237 .0655402 -2.57 0.010 .6937069 .9516913

2005.75 | .6461277 .0558783 -5.05 0.000 .5453872 .7654764

2006 | .7181547 .0654683 -3.63 0.000 .6006492 .8586479

2006.25 | .6266631 .0518941 -5.64 0.000 .5327776 .737093

2006.5 | .75999 .0636116 -3.28 0.001 .6450031 .8954761

2006.75 | .6366411 .0562531 -5.11 0.000 .535406 .7570179

2007 | .6112247 .0499898 -6.02 0.000 .5206961 .7174928

2007.25 | .6006866 .0595551 -5.14 0.000 .4946017 .7295252

2007.5 | .783304 .0882127 -2.17 0.030 .6281616 .9767634

2007.75 | .6597391 .0585445 -4.69 0.000 .5544182 .7850673

2008 | .616968 .0546034 -5.46 0.000 .5187151 .7338315

2008.25 | .6003956 .0535402 -5.72 0.000 .5041174 .7150614

2008.5 | .7112548 .0675651 -3.59 0.000 .5904267 .8568098

2008.75 | .5757034 .0502889 -6.32 0.000 .4851147 .6832082

2009 | .592637 .0501958 -6.18 0.000 .5019874 .6996563

2009.25 | .6363226 .0638057 -4.51 0.000 .5227875 .7745144

2009.5 | .6290725 .0606685 -4.81 0.000 .5207267 .7599614

2009.75 | .5269303 .0453665 -7.44 0.000 .445111 .6237896

2010 | .4712821 .0434801 -8.15 0.000 .3933235 .5646926

2010.25 | .512814 .0548649 -6.24 0.000 .4158068 .6324528

2010.5 | .6834849 .0603843 -4.31 0.000 .5748139 .8127007

2010.75 | .5527536 .0551992 -5.94 0.000 .4544946 .6722557

2011 | .5297126 .0488733 -6.89 0.000 .4420844 .63471

2011.25 | .4805711 .0430171 -8.19 0.000 .4032409 .572731

2011.5 | .5503587 .0487166 -6.75 0.000 .4626998 .6546247

2011.75 | .4430893 .0405881 -8.89 0.000 .3702704 .5302291

2012 | .4687429 .0473832 -7.50 0.000 .3844948 .5714509

2012.25 | .4603311 .0435193 -8.21 0.000 .3824709 .5540414

2012.5 | .5431688 .0577323 -5.74 0.000 .4410241 .6689709

2012.75 | .377686 .0397665 -9.25 0.000 .3072613 .4642521

2013 | .4660464 .0531172 -6.70 0.000 .372747 .5826988

2013.25 | .412232 .0431948 -8.46 0.000 .3356993 .5062125

2013.5 | .4734205 .0514077 -6.89 0.000 .3826635 .5857025

2013.75 | .3506563 .0382218 -9.61 0.000 .2832045 .4341735

2014 | .4229998 .0427331 -8.52 0.000 .347015 .5156226

2014.25 | .4157662 .04751 -7.68 0.000 .3323393 .5201358

2014.5 | .4455873 .0469819 -7.67 0.000 .3623962 .5478756

2014.75 | .4760899 .0567873 -6.22 0.000 .3768417 .6014769

2015 | .3837719 .0412469 -8.91 0.000 .3108766 .4737599

2015.25 | .3355753 .0363761 -10.07 0.000 .2713442 .4150109

2015.5 | .461878 .0476293 -7.49 0.000 .3773554 .5653324

2015.75 | .3446704 .0414151 -8.86 0.000 .2723483 .4361975

2016 | .3685321 .0503618 -7.30 0.000 .2819384 .481722

|

\_cons | .0000839 4.89e-06 -161.27 0.000 .0000749 .0000941

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 = -41137.597

Iteration 1: log pseudolikelihood = -36316.254

Iteration 2: log pseudolikelihood = -36066.779

Iteration 3: log pseudolikelihood = -36061.106

Iteration 4: log pseudolikelihood = -36061.093

Iteration 5: log pseudolikelihood = -36061.092

Fitting constant-only model:

Iteration 0: log pseudolikelihood = -36163.905

Iteration 1: log pseudolikelihood = -35503.284

Iteration 2: log pseudolikelihood = -35464.22

Iteration 3: log pseudolikelihood = -35464.069

Iteration 4: log pseudolikelihood = -35464.069

Fitting full model:

Iteration 0: log pseudolikelihood = -34120.477

Iteration 1: log pseudolikelihood = -33846.507

Iteration 2: log pseudolikelihood = -33835.184

Iteration 3: log pseudolikelihood = -33835.168

Iteration 4: log pseudolikelihood = -33835.168

Negative binomial regression Number of obs = 19,291

Wald chi2(163) = .

Dispersion = mean Prob > chi2 = .

Log pseudolikelihood = -33835.168 Pseudo R2 = 0.0459

(Std. Err. adjusted for 1,288 clusters in mineid)

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| Robust

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

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

sp48\_11\_pp\_c\_lag\_all | 1.000586 .0004815 1.22 0.223 .9996432 1.001531

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

sp48\_25\_pp\_c\_lag\_all | .9973018 .0008976 -3.00 0.003 .995544 .9990626

sp48\_26\_pp\_c\_lag\_all | 1.001054 .0011563 0.91 0.362 .9987903 1.003323

sp48\_27\_pp\_c\_lag\_all | .9997145 .0005554 -0.51 0.607 .9986266 1.000804

sp48\_28\_pp\_c\_lag\_all | .9983849 .0007651 -2.11 0.035 .9968865 .9998855

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

sp48\_5\_pp\_c\_lag\_all | 1.000611 .0014746 0.41 0.678 .9977253 1.003506

sp48\_6\_pp\_c\_lag\_all | 1.000363 .0004569 0.80 0.426 .9994682 1.001259

sp48\_7\_pp\_c\_lag\_all | .9991964 .0004378 -1.83 0.067 .9983388 1.000055

sp48\_8\_pp\_c\_lag\_all | 1.000393 .0008895 0.44 0.659 .9986508 1.002138

sp75\_100\_pp\_c\_lag\_all | 1.002998 .0016253 1.85 0.065 .9998175 1.006188

sp75\_1002\_pp\_c\_lag\_all | 1.000557 .0002078 2.68 0.007 1.000149 1.000964

sp75\_1003\_pp\_c\_lag\_all | 1.000214 .0000917 2.33 0.020 1.000034 1.000393

sp75\_1003\_2\_pp\_c\_lag\_all | .9995658 .0007099 -0.61 0.541 .9981754 1.000958

sp75\_1311\_pp\_c\_lag\_all | 1.000544 .0007715 0.71 0.481 .9990331 1.002057

sp75\_1315\_pp\_c\_lag\_all | .9982467 .0057327 -0.31 0.760 .9870738 1.009546

sp75\_1316\_pp\_c\_lag\_all | .9981044 .0010263 -1.85 0.065 .996095 1.000118

sp75\_1318\_pp\_c\_lag\_all | .9848793 .0017463 -8.59 0.000 .9814626 .9883079

sp75\_1400\_pp\_c\_lag\_all | 1.000576 .0003712 1.55 0.121 .9998484 1.001304

sp75\_1400\_1\_pp\_c\_lag\_all | .9977275 .001667 -1.36 0.173 .9944655 1.001

sp75\_1403\_10\_pp\_c\_lag\_all | 1.000329 .0000954 3.45 0.001 1.000142 1.000516

sp75\_1403\_5\_pp\_c\_lag\_all | .9999008 .0000525 -1.89 0.059 .9997979 1.000004

sp75\_1403\_6\_pp\_c\_lag\_all | 1.000085 .0000507 1.68 0.093 .9999857 1.000184

sp75\_1403\_7\_pp\_c\_lag\_all | .9997177 .0003677 -0.77 0.443 .9989974 1.000439

sp75\_1403\_8\_pp\_c\_lag\_all | .9998981 .0000665 -1.53 0.125 .9997678 1.000028

sp75\_1404\_pp\_c\_lag\_all | .9999587 .0014665 -0.03 0.978 .9970885 1.002837

sp75\_1404\_1\_pp\_c\_lag\_all | .9918526 .0023753 -3.42 0.001 .987208 .996519

sp75\_1405\_pp\_c\_lag\_all | .9999136 .0001442 -0.60 0.549 .999631 1.000196

sp75\_1405\_1\_pp\_c\_lag\_all | .9999161 .0021457 -0.04 0.969 .9957193 1.004131

sp75\_153\_pp\_c\_lag\_all | 1.00448 .0020184 2.22 0.026 1.000531 1.008443

sp75\_156\_pp\_c\_lag\_all | .9917247 .0034147 -2.41 0.016 .9850547 .99844

sp75\_160\_pp\_c\_lag\_all | 1.015598 .0088088 1.78 0.074 .9984788 1.03301

sp75\_1719\_2\_pp\_c\_lag\_all | 1.000232 .0018403 0.13 0.899 .9966321 1.003846

sp75\_1719\_4\_pp\_c\_lag\_all | .9998104 .0003219 -0.59 0.556 .9991796 1.000441

sp75\_1720\_pp\_c\_lag\_all | 1.000466 .0003088 1.51 0.131 .9998613 1.001072

sp75\_1725\_pp\_c\_lag\_all | .9999622 .0000226 -1.67 0.094 .999918 1.000006

sp75\_1906\_pp\_c\_lag\_all | 1.000327 .0003352 0.98 0.329 .9996702 1.000984

sp75\_1916\_pp\_c\_lag\_all | .9993784 .0004443 -1.40 0.162 .9985081 1.00025

sp75\_203\_pp\_c\_lag\_all | .9999553 .0000845 -0.53 0.597 .9997896 1.000121

sp75\_204\_pp\_c\_lag\_all | 1.000187 .0001373 1.37 0.172 .9999184 1.000457

sp75\_205\_pp\_c\_lag\_all | 1.006452 .0041696 1.55 0.121 .9983128 1.014657

sp75\_207\_pp\_c\_lag\_all | 1.003785 .0024805 1.53 0.126 .9989351 1.008659

sp75\_208\_pp\_c\_lag\_all | 1.000274 .0001214 2.25 0.024 1.000036 1.000512

sp75\_209\_pp\_c\_lag\_all | .9998661 .0006227 -0.22 0.830 .9986464 1.001087

sp75\_212\_pp\_c\_lag\_all | 1.000357 .0002758 1.30 0.195 .9998171 1.000898

sp75\_213\_pp\_c\_lag\_all | 1.00223 .0013535 1.65 0.099 .9995805 1.004886

sp75\_215\_pp\_c\_lag\_all | .9971879 .0029576 -0.95 0.342 .9914079 1.003002

sp75\_332\_pp\_c\_lag\_all | .9974565 .0009348 -2.72 0.007 .995626 .9992902

sp75\_334\_pp\_c\_lag\_all | .9993774 .0003478 -1.79 0.074 .9986959 1.000059

sp75\_337\_pp\_c\_lag\_all | .9996688 .0002606 -1.27 0.204 .9991581 1.00018

sp75\_340\_pp\_c\_lag\_all | .9998224 .0000607 -2.92 0.003 .9997034 .9999414

sp75\_343\_pp\_c\_lag\_all | .9995543 .0006976 -0.64 0.523 .9981879 1.000923

sp75\_373\_pp\_c\_lag\_all | 1.0167 .0072671 2.32 0.020 1.002556 1.031043

sp75\_388\_pp\_c\_lag\_all | .999795 .0006278 -0.33 0.744 .9985653 1.001026

sp75\_389\_pp\_c\_lag\_all | .9982858 .0013157 -1.30 0.193 .9957104 1.000868

sp75\_500\_pp\_c\_lag\_all | 1.000914 .0006521 1.40 0.161 .9996367 1.002193

sp75\_500\_1\_pp\_c\_lag\_all | .9973256 .003984 -0.67 0.503 .9895476 1.005165

sp75\_501\_pp\_c\_lag\_all | 1.00177 .001121 1.58 0.114 .9995749 1.003969

sp75\_501\_2\_pp\_c\_lag\_all | .9964527 .0014374 -2.46 0.014 .9936394 .9992739

sp75\_502\_pp\_c\_lag\_all | 1.003535 .0022768 1.56 0.120 .9990826 1.008008

sp75\_503\_pp\_c\_lag\_all | .9999753 .0000166 -1.48 0.138 .9999427 1.000008

sp75\_505\_pp\_c\_lag\_all | 1.00183 .0014195 1.29 0.197 .9990519 1.004616

sp75\_506\_1\_pp\_c\_lag\_all | 1.002605 .0007179 3.63 0.000 1.001199 1.004013

sp75\_507\_pp\_c\_lag\_all | 1.000119 .0004041 0.29 0.769 .9993272 1.000911

sp75\_507\_1\_pp\_c\_lag\_all | 1.000118 .0001855 0.64 0.525 .9997544 1.000481

sp75\_508\_1\_pp\_c\_lag\_all | .9954365 .0019691 -2.31 0.021 .9915846 .9993033

sp75\_509\_pp\_c\_lag\_all | 1.00118 .0014442 0.82 0.414 .9983533 1.004014

sp75\_510\_pp\_c\_lag\_all | 1.007054 .0066558 1.06 0.287 .9940934 1.020184

sp75\_512\_1\_pp\_c\_lag\_all | .9990618 .0024539 -0.38 0.702 .9942639 1.003883

sp75\_523\_pp\_c\_lag\_all | .9998856 .000269 -0.43 0.670 .9993586 1.000413

sp75\_523\_3\_pp\_c\_lag\_all | .9999628 .0000649 -0.57 0.567 .9998357 1.00009

sp75\_524\_pp\_c\_lag\_all | 1.002382 .0015693 1.52 0.129 .9993114 1.005463

sp75\_602\_pp\_c\_lag\_all | 1.000109 .0003613 0.30 0.763 .9994009 1.000817

sp75\_603\_pp\_c\_lag\_all | .9992998 .0004597 -1.52 0.128 .9983992 1.000201

sp75\_604\_pp\_c\_lag\_all | .9999466 .0000256 -2.09 0.037 .9998965 .9999968

sp75\_605\_pp\_c\_lag\_all | 1.0002 .0001969 1.02 0.310 .999814 1.000586

sp75\_606\_pp\_c\_lag\_all | 1.000071 .0000539 1.32 0.185 .9999657 1.000177

sp75\_607\_pp\_c\_lag\_all | .9993457 .0004297 -1.52 0.128 .9985038 1.000188

sp75\_703\_3\_pp\_c\_lag\_all | 1.002297 .0008912 2.58 0.010 1.000552 1.004045

sp75\_703\_4\_pp\_c\_lag\_all | 1.011047 .0033735 3.29 0.001 1.004457 1.017681

sp75\_807\_pp\_c\_lag\_all | 1.000147 .0000678 2.17 0.030 1.000015 1.00028

sp75\_810\_pp\_c\_lag\_all | 1.000254 .0002905 0.88 0.382 .9996849 1.000824

sp75\_811\_pp\_c\_lag\_all | 1.000023 .0003145 0.07 0.942 .9994067 1.00064

sp75\_812\_pp\_c\_lag\_all | .9970625 .0013935 -2.10 0.035 .9943351 .9997974

sp75\_816\_pp\_c\_lag\_all | .9998127 .0002245 -0.83 0.404 .9993727 1.000253

sp75\_817\_pp\_c\_lag\_all | .9978124 .0019685 -1.11 0.267 .9939616 1.001678

sp75\_906\_pp\_c\_lag\_all | .9956054 .0026942 -1.63 0.104 .9903388 1.0009

mine\_time | 1.003111 .0020555 1.52 0.129 .9990909 1.007148

onsite\_insp\_hours | .9996889 .0001153 -2.70 0.007 .9994629 .999915

|

state |

AL | 1.026512 .1221613 0.22 0.826 .8129539 1.296171

CO | .7855797 .083406 -2.27 0.023 .6379949 .9673049

IL | 1.319178 .0947655 3.86 0.000 1.145924 1.518626

IN | 1.153092 .1558055 1.05 0.292 .8848091 1.50272

MD | 1.339886 .3022619 1.30 0.195 .861087 2.084915

MT | 2.10e-08 2.11e-08 -17.64 0.000 2.95e-09 1.50e-07

NM | .9029913 .1055507 -0.87 0.383 .7181027 1.135483

OH | 1.153128 .1301144 1.26 0.207 .9243388 1.438546

OK | 2.386277 .2862592 7.25 0.000 1.886298 3.01878

PA | 1.265001 .1253508 2.37 0.018 1.041703 1.536165

TN | 1.5837 .185624 3.92 0.000 1.258649 1.992698

UT | .474505 .0639434 -5.53 0.000 .3643633 .6179411

VA | .9497274 .0570827 -0.86 0.391 .8441859 1.068464

WV | 1.22342 .0623457 3.96 0.000 1.107129 1.351926

WY | .9923228 .140161 -0.05 0.956 .7523583 1.308824

|

time |

2000.25 | 1.1563 .0613825 2.74 0.006 1.04204 1.283089

2000.5 | 1.264596 .068043 4.36 0.000 1.138026 1.405244

2000.75 | .8799801 .0527777 -2.13 0.033 .7823861 .9897479

2001 | .8930592 .0537238 -1.88 0.060 .7937331 1.004815

2001.25 | .9945917 .068095 -0.08 0.937 .8696952 1.137425

2001.5 | 1.173189 .0755941 2.48 0.013 1.034001 1.331113

2001.75 | .9154321 .0587802 -1.38 0.169 .8071796 1.038203

2002 | 1.008256 .083443 0.10 0.921 .8572855 1.185812

2002.25 | .9648243 .0615359 -0.56 0.574 .8514499 1.093295

2002.5 | 1.002305 .0652494 0.04 0.972 .8822407 1.138708

2002.75 | .848714 .0568878 -2.45 0.014 .7442294 .9678675

2003 | .7961635 .0582729 -3.11 0.002 .6897647 .9189746

2003.25 | .8688085 .0650302 -1.88 0.060 .7502599 1.006089

2003.5 | .9220644 .0602321 -1.24 0.214 .8112564 1.048008

2003.75 | .6996812 .0522768 -4.78 0.000 .6043695 .810024

2004 | .73082 .0553059 -4.14 0.000 .6300783 .8476691

2004.25 | .7943822 .0569993 -3.21 0.001 .6901656 .9143357

2004.5 | .8437454 .0604033 -2.37 0.018 .7332877 .9708418

2004.75 | .6619895 .0505113 -5.41 0.000 .5700363 .7687759

2005 | .6728402 .0509274 -5.24 0.000 .5800752 .7804401

2005.25 | .6984901 .0532052 -4.71 0.000 .6016208 .8109568

2005.5 | .8218309 .060114 -2.68 0.007 .7120658 .9485163

2005.75 | .6627659 .0521695 -5.23 0.000 .5680126 .7733256

2006 | .6977988 .0559604 -4.49 0.000 .5963037 .816569

2006.25 | .6351703 .0481757 -5.98 0.000 .5474307 .7369724

2006.5 | .7786228 .0582638 -3.34 0.001 .6724072 .9016166

2006.75 | .6377676 .0497581 -5.77 0.000 .547334 .7431432

2007 | .6326171 .0482699 -6.00 0.000 .5447442 .7346649

2007.25 | .6135887 .0589904 -5.08 0.000 .5082096 .7408185

2007.5 | .7805494 .0714615 -2.71 0.007 .6523348 .9339643

2007.75 | .6815305 .0553357 -4.72 0.000 .5812641 .7990926

2008 | .6252314 .0497395 -5.90 0.000 .5349639 .7307303

2008.25 | .6123301 .0516977 -5.81 0.000 .518944 .7225215

2008.5 | .7355613 .066732 -3.39 0.001 .6157377 .8787028

2008.75 | .5951588 .0484054 -6.38 0.000 .5074615 .6980116

2009 | .60102 .0460655 -6.64 0.000 .5171876 .698441

2009.25 | .6117797 .0540663 -5.56 0.000 .5144815 .7274788

2009.5 | .6250088 .0543993 -5.40 0.000 .5269865 .7412637

2009.75 | .5269094 .0408006 -8.27 0.000 .4527143 .6132643

2010 | .4778802 .0407211 -8.67 0.000 .4043771 .564744

2010.25 | .5269414 .0550755 -6.13 0.000 .4293341 .6467394

2010.5 | .6614414 .0540746 -5.06 0.000 .5635123 .7763889

2010.75 | .5395758 .0466142 -7.14 0.000 .4555298 .6391285

2011 | .5262924 .044243 -7.64 0.000 .4463449 .6205599

2011.25 | .4789158 .0392364 -8.99 0.000 .4078705 .5623361

2011.5 | .5524211 .0445393 -7.36 0.000 .4716736 .6469921

2011.75 | .4357933 .0360209 -10.05 0.000 .3706156 .5124334

2012 | .4643515 .0411528 -8.66 0.000 .39031 .5524386

2012.25 | .4478087 .0381406 -9.43 0.000 .3789608 .5291645

2012.5 | .523266 .0486781 -6.96 0.000 .436051 .6279249

2012.75 | .381482 .0368753 -9.97 0.000 .3156415 .4610563

2013 | .4408178 .0439167 -8.22 0.000 .362625 .5358713

2013.25 | .4044857 .039007 -9.39 0.000 .334824 .4886407

2013.5 | .4674676 .0465375 -7.64 0.000 .3846028 .568186

2013.75 | .3575944 .0358981 -10.24 0.000 .2937247 .4353523

2014 | .4152507 .0401335 -9.09 0.000 .3435918 .5018547

2014.25 | .4079482 .0427023 -8.57 0.000 .3322805 .5008471

2014.5 | .4435634 .0426648 -8.45 0.000 .3673514 .5355867

2014.75 | .4426667 .0462143 -7.81 0.000 .3607544 .5431778

2015 | .3791198 .0385318 -9.54 0.000 .3106452 .462688

2015.25 | .3347757 .0337041 -10.87 0.000 .274826 .4078026

2015.5 | .4627193 .0444441 -8.02 0.000 .3833187 .558567

2015.75 | .3439929 .0394662 -9.30 0.000 .2747207 .4307325

2016 | .3699437 .0466173 -7.89 0.000 .2889842 .4735841

|

\_cons | .0000851 4.53e-06 -175.92 0.000 .0000766 .0000944

ln(hours) | 1 (exposure)

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

/lnalpha | -1.199726 .0829756 -1.362355 -1.037097

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

alpha | .3012768 .0249986 .256057 .3544823

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

(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.Q.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.Q.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) = 4451.85

(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 | 19,291 -40650.43 -36061.09 164 72450.18 73740.44

nbin | 19,291 -35464.07 -33835.17 165 68000.34 69298.46

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

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)

(10,998 missing values generated)

. gen cpp4\_res = dv - cpp4\_yhat

(10,998 missing values generated)

.

. summ dv cpp4\_yhat

Variable | Obs Mean Std. Dev. Min Max

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

dv | 30,289 2.177721 3.851734 0 71

cpp4\_yhat | 19,291 2.933628 4.108556 3.19e-09 45.72721

. /\*

> pause "next"

>

> scatter dv cpp4\_yhat

>

> pause "next"

>

> scatter cpp4\_res dv

>

> pause "next"

>

> scatter cpp4\_res cpp4\_yhat

> \*/

. pause "complete: C.PP.4"