. // Model C.V.4

.

. // poisson model

. glm dv `count\_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\_c\_lag\_all omitted because of collinearity

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

Iteration 0: log pseudolikelihood = -22132.529

Iteration 1: log pseudolikelihood = -19764.71

Iteration 2: log pseudolikelihood = -19752.943

Iteration 3: log pseudolikelihood = -19752.924

Iteration 4: log pseudolikelihood = -19752.924

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,137

Scale parameter = 1

Deviance = 19977.86755 (1/df) Deviance = 3.255315

Pearson = 24035.0729 (1/df) Pearson = 3.916421

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

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

AIC = 6.355005

Log pseudolikelihood = -19752.92387 BIC = -33664.52

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

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

| Robust

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

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

sp48\_11\_c\_lag\_all | 1.011159 .0080016 1.40 0.161 .9955969 1.026964

sp75\_1311\_c\_lag\_all | .9853892 .022032 -0.66 0.510 .9431397 1.029531

sp75\_1400\_1\_c\_lag\_all | .9818196 .0273491 -0.66 0.510 .9296533 1.036913

sp75\_1404\_1\_c\_lag\_all | .9121007 .0199271 -4.21 0.000 .8738686 .9520054

sp75\_1405\_1\_c\_lag\_all | .9974721 .0335756 -0.08 0.940 .933789 1.065498

sp75\_500\_1\_c\_lag\_all | .9037677 .0333158 -2.74 0.006 .8407731 .9714822

sp75\_501\_c\_lag\_all | 1.019124 .0108972 1.77 0.076 .9979879 1.040707

sp75\_506\_1\_c\_lag\_all | 1.032818 .0076679 4.35 0.000 1.017898 1.047956

sp75\_507\_1\_c\_lag\_all | 1.001409 .0029023 0.49 0.627 .9957369 1.007114

sp75\_508\_1\_c\_lag\_all | .9443205 .0417154 -1.30 0.195 .8659994 1.029725

sp75\_512\_1\_c\_lag\_all | .9710171 .0255932 -1.12 0.264 .9221289 1.022497

sp75\_811\_c\_lag\_all | .9949738 .0043127 -1.16 0.245 .9865569 1.003463

sp75\_1002\_c\_lag\_all | 1.006807 .0027264 2.51 0.012 1.001478 1.012165

sp75\_1003\_2\_c\_lag\_all | 1.005474 .0119915 0.46 0.647 .9822434 1.029253

sp75\_1322\_c\_lag\_all | 1.67049 .148187 5.78 0.000 1.403896 1.987709

sp75\_1719\_2\_c\_lag\_all | 1.013803 .0139937 0.99 0.321 .9867434 1.041605

sp75\_212\_c\_lag\_all | 1.002904 .0029268 0.99 0.320 .9971837 1.008657

sp75\_332\_c\_lag\_all | .9791589 .0126902 -1.63 0.104 .9545999 1.00435

sp75\_501\_2\_c\_lag\_all | 1.002415 .0142958 0.17 0.866 .9747832 1.030829

sp75\_502\_c\_lag\_all | .9941363 .0186628 -0.31 0.754 .9582226 1.031396

sp75\_602\_c\_lag\_all | .9990504 .0028974 -0.33 0.743 .9933877 1.004746

sp75\_812\_c\_lag\_all | .9852093 .0202615 -0.72 0.469 .9462871 1.025732

sp75\_1003\_c\_lag\_all | 1.002249 .0015665 1.44 0.151 .9991839 1.005324

sp75\_153\_c\_lag\_all | 1.053514 .0279291 1.97 0.049 1.000172 1.109701

sp75\_203\_c\_lag\_all | .9995645 .0011278 -0.39 0.699 .9973566 1.001777

sp75\_213\_c\_lag\_all | 1.08664 .0175641 5.14 0.000 1.052755 1.121616

sp75\_343\_c\_lag\_all | .9908528 .0081062 -1.12 0.261 .9750917 1.006869

sp75\_373\_c\_lag\_all | .8172785 .1124221 -1.47 0.142 .6241394 1.070184

sp75\_503\_c\_lag\_all | .999686 .0002461 -1.28 0.202 .9992037 1.000169

sp75\_523\_c\_lag\_all | .9957981 .002831 -1.48 0.139 .9902648 1.001362

sp75\_523\_3\_c\_lag\_all | .9989308 .000787 -1.36 0.175 .9973896 1.000474

sp75\_603\_c\_lag\_all | .9984578 .0052284 -0.29 0.768 .9882628 1.008758

sp75\_703\_3\_c\_lag\_all | 1.010261 .0071666 1.44 0.150 .996312 1.024406

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

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

sp75\_1404\_c\_lag\_all | 1.026927 .0330286 0.83 0.409 .9641904 1.093746

sp75\_1719\_4\_c\_lag\_all | 1.011196 .0042831 2.63 0.009 1.002836 1.019626

sp75\_204\_c\_lag\_all | .9998467 .0017332 -0.09 0.930 .9964555 1.003249

sp75\_334\_c\_lag\_all | .989901 .0041415 -2.43 0.015 .981817 .9980515

sp75\_524\_c\_lag\_all | 1.005325 .0305432 0.17 0.861 .9472093 1.067007

sp75\_604\_c\_lag\_all | 1.000116 .0002959 0.39 0.695 .9995363 1.000696

sp75\_703\_4\_c\_lag\_all | 1.114008 .0293132 4.10 0.000 1.058011 1.172968

sp48\_25\_c\_lag\_all | .9685292 .00752 -4.12 0.000 .9539018 .9833809

sp48\_5\_c\_lag\_all | 1.024847 .0135504 1.86 0.063 .9986297 1.051752

sp75\_1315\_c\_lag\_all | .9603431 .0687617 -0.57 0.572 .8346019 1.105028

sp75\_1403\_5\_c\_lag\_all | .9994289 .0004842 -1.18 0.238 .9984804 1.000378

sp75\_1405\_c\_lag\_all | 1.00071 .001844 0.39 0.700 .9971026 1.004331

sp75\_155\_c\_lag\_all | .9483014 .0565344 -0.89 0.373 .8437248 1.06584

sp75\_1725\_c\_lag\_all | .9996118 .0002716 -1.43 0.153 .9990796 1.000144

sp75\_205\_c\_lag\_all | 1.05846 .0146809 4.10 0.000 1.030074 1.087629

sp75\_215\_c\_lag\_all | 1.071864 .0493439 1.51 0.132 .9793864 1.173074

sp75\_505\_c\_lag\_all | .989624 .0259703 -0.40 0.691 .94001 1.041857

sp75\_605\_c\_lag\_all | .9971758 .0022028 -1.28 0.200 .9928678 1.001503

sp48\_26\_c\_lag\_all | 1.001599 .0128088 0.12 0.901 .976806 1.027021

sp48\_6\_c\_lag\_all | 1.010917 .0082293 1.33 0.182 .994916 1.027176

sp75\_1316\_c\_lag\_all | .9712504 .0472195 -0.60 0.548 .8829744 1.068352

sp75\_1403\_6\_c\_lag\_all | 1.000445 .0005483 0.81 0.417 .9993709 1.00152

sp75\_156\_c\_lag\_all | .8556082 .0644541 -2.07 0.038 .7381639 .9917383

sp75\_1906\_c\_lag\_all | 1.003425 .003455 0.99 0.321 .996676 1.01022

sp75\_1916\_c\_lag\_all | 1.000768 .0037452 0.21 0.837 .9934544 1.008135

sp75\_606\_c\_lag\_all | 1.000221 .0005086 0.43 0.664 .9992247 1.001218

sp75\_816\_c\_lag\_all | 1.007885 .0042189 1.88 0.061 .9996503 1.016188

sp75\_906\_c\_lag\_all | .9600856 .0215032 -1.82 0.069 .9188517 1.00317

sp48\_27\_c\_lag\_all | .9897882 .0088623 -1.15 0.252 .9725701 1.007311

sp48\_7\_c\_lag\_all | .9848898 .0075131 -2.00 0.046 .970274 .9997258

sp75\_1403\_7\_c\_lag\_all | 1.000521 .0047306 0.11 0.912 .9912919 1.009836

sp75\_207\_c\_lag\_all | 1.03307 .0145649 2.31 0.021 1.004915 1.062015

sp75\_327\_c\_lag\_all | .9866898 .0551892 -0.24 0.811 .8842393 1.101011

sp75\_337\_c\_lag\_all | .9966076 .0046042 -0.74 0.462 .9876243 1.005673

sp75\_507\_c\_lag\_all | 1.00259 .0053839 0.48 0.630 .9920935 1.013198

sp75\_607\_c\_lag\_all | .9976776 .0047715 -0.49 0.627 .9883694 1.007073

sp75\_807\_c\_lag\_all | 1.001393 .0006276 2.22 0.026 1.000163 1.002624

sp75\_817\_c\_lag\_all | .988579 .0276488 -0.41 0.681 .9358469 1.044283

sp48\_28\_c\_lag\_all | .9924504 .0068843 -1.09 0.275 .9790488 1.006036

sp48\_8\_c\_lag\_all | 1.001978 .0078113 0.25 0.800 .9867847 1.017406

sp75\_1318\_c\_lag\_all | 1.042921 .0352692 1.24 0.214 .9760357 1.11439

sp75\_1403\_8\_c\_lag\_all | .9982922 .0005022 -3.40 0.001 .9973085 .999277

sp75\_208\_c\_lag\_all | 1.001092 .001652 0.66 0.509 .997859 1.004335

sp75\_388\_c\_lag\_all | 1.014 .0085903 1.64 0.101 .9973028 1.030978

sp75\_209\_c\_lag\_all | .9949897 .0075822 -0.66 0.510 .9802393 1.009962

sp75\_389\_c\_lag\_all | .9995773 .0191213 -0.02 0.982 .9627942 1.037766

sp75\_509\_c\_lag\_all | 1.02912 .0160851 1.84 0.066 .998072 1.061134

sp75\_100\_c\_lag\_all | 1.03708 .0242207 1.56 0.119 .9906782 1.085655

sp75\_1400\_c\_lag\_all | 1.007747 .0030517 2.55 0.011 1.001783 1.013746

sp75\_1403\_10\_c\_lag\_all | 1.000932 .001021 0.91 0.361 .9989326 1.002935

sp75\_160\_c\_lag\_all | .9996841 .0461874 -0.01 0.995 .9131363 1.094435

sp75\_1720\_c\_lag\_all | 1.002891 .0046983 0.62 0.538 .9937246 1.012142

sp75\_340\_c\_lag\_all | .9970809 .0008625 -3.38 0.001 .9953919 .9987728

sp75\_500\_c\_lag\_all | 1.009668 .0074636 1.30 0.193 .9951453 1.024403

sp75\_510\_c\_lag\_all | 1.129436 .0586891 2.34 0.019 1.020071 1.250526

sp75\_810\_c\_lag\_all | 1.011626 .0047906 2.44 0.015 1.00228 1.021059

mine\_time | 1.01705 .0064263 2.68 0.007 1.004532 1.029724

onsite\_insp\_hours | .9999577 .0000358 -1.18 0.237 .9998876 1.000028

|

state |

1 | .6886625 .0913873 -2.81 0.005 .5309454 .8932294

2 | 1.522917 .0692439 9.25 0.000 1.393073 1.664863

3 | .631728 .0672308 -4.32 0.000 .512793 .7782483

4 | 1.060309 .0858557 0.72 0.470 .9047087 1.242671

5 | 1.047262 .1380411 0.35 0.726 .8088304 1.355981

6 | .8828393 .0439124 -2.51 0.012 .8008348 .9732409

7 | 1.103441 .1823305 0.60 0.551 .7981753 1.525458

8 | .4305635 .0193687 -18.73 0.000 .3942269 .4702493

9 | .6732557 .0575472 -4.63 0.000 .5694069 .7960445

10 | .9945398 .0726598 -0.07 0.940 .8618554 1.147651

11 | 2.315223 .539102 3.61 0.000 1.466863 3.65423

12 | 1.024903 .0811277 0.31 0.756 .8776167 1.196909

13 | 1.477773 .1315316 4.39 0.000 1.24121 1.759423

14 | .3721924 .0653923 -5.63 0.000 .2637642 .5251933

15 | .7860298 .0413589 -4.58 0.000 .7090077 .8714192

17 | .6908611 .0982113 -2.60 0.009 .5228604 .9128422

|

time |

2000 | 1.038512 .0414991 0.95 0.344 .9602789 1.123119

2002 | .945575 .0369545 -1.43 0.152 .87585 1.020851

2003 | .8242125 .0374899 -4.25 0.000 .7539138 .9010662

2004 | .8001734 .0381413 -4.68 0.000 .7288035 .8785324

2005 | .7537862 .0385651 -5.52 0.000 .681866 .8332921

2006 | .7401214 .0387862 -5.74 0.000 .6678756 .8201821

2007 | .7322839 .0435813 -5.24 0.000 .6516596 .822883

2008 | .6697594 .0387395 -6.93 0.000 .5979771 .7501587

2009 | .5924145 .0347138 -8.93 0.000 .5281384 .6645133

2010 | .5698475 .0353312 -9.07 0.000 .5046418 .6434786

2011 | .5126676 .0312436 -10.96 0.000 .4549471 .5777112

2012 | .4497476 .0296074 -12.14 0.000 .3953059 .5116869

2013 | .4199113 .0305045 -11.94 0.000 .3641849 .4841649

2014 | .4221466 .0348488 -10.45 0.000 .3590835 .496285

2015 | .382523 .033958 -10.82 0.000 .3214351 .4552205

|

\_cons | .0000963 5.09e-06 -174.88 0.000 .0000868 .0001069

ln(hours) | 1 (exposure)

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

.

. quietly poisson dv `count\_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 = 19977.87

Prob > chi2(6137) = 0.0000

Pearson goodness-of-fit = 24035.07

Prob > chi2(6137) = 0.0000

.

. pause "next"

.

. // negative binomial model

. glm dv `count\_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\_c\_lag\_all omitted because of collinearity

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

Iteration 0: log pseudolikelihood = -17715.405

Iteration 1: log pseudolikelihood = -17445.077

Iteration 2: log pseudolikelihood = -17438.357

Iteration 3: log pseudolikelihood = -17438.336

Iteration 4: log pseudolikelihood = -17438.336

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,137

Scale parameter = 1

Deviance = 3788.701972 (1/df) Deviance = .6173541

Pearson = 4756.580516 (1/df) Pearson = .7750661

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

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

AIC = 5.614693

Log pseudolikelihood = -17438.33618 BIC = -49853.69

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

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

| Robust

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

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

sp48\_11\_c\_lag\_all | 1.018622 .0105839 1.78 0.076 .9980876 1.039579

sp75\_1311\_c\_lag\_all | 1.005426 .0318201 0.17 0.864 .9449544 1.069767

sp75\_1400\_1\_c\_lag\_all | .9426449 .0370344 -1.50 0.133 .8727831 1.018099

sp75\_1404\_1\_c\_lag\_all | .8974175 .0392447 -2.48 0.013 .8237035 .9777283

sp75\_1405\_1\_c\_lag\_all | .9941054 .054513 -0.11 0.914 .8928032 1.106902

sp75\_500\_1\_c\_lag\_all | .9820618 .0351179 -0.51 0.613 .9155887 1.053361

sp75\_501\_c\_lag\_all | 1.010063 .0135911 0.74 0.457 .983773 1.037055

sp75\_506\_1\_c\_lag\_all | 1.023361 .0132839 1.78 0.075 .9976538 1.049731

sp75\_507\_1\_c\_lag\_all | 1.004675 .0045314 1.03 0.301 .9958325 1.013596

sp75\_508\_1\_c\_lag\_all | .9684706 .0486446 -0.64 0.524 .8776716 1.068663

sp75\_512\_1\_c\_lag\_all | .9349085 .0404164 -1.56 0.119 .8589569 1.017576

sp75\_811\_c\_lag\_all | 1.002942 .0066803 0.44 0.659 .989934 1.016121

sp75\_1002\_c\_lag\_all | 1.006459 .00597 1.09 0.278 .9948257 1.018228

sp75\_1003\_2\_c\_lag\_all | .9989343 .0154754 -0.07 0.945 .969059 1.029731

sp75\_1322\_c\_lag\_all | 2.161521 .3295686 5.06 0.000 1.603158 2.914357

sp75\_1719\_2\_c\_lag\_all | 1.033817 .0254797 1.35 0.177 .9850643 1.084982

sp75\_212\_c\_lag\_all | 1.001367 .0044235 0.31 0.757 .9927346 1.010075

sp75\_332\_c\_lag\_all | .9968683 .0132031 -0.24 0.813 .9713237 1.023085

sp75\_501\_2\_c\_lag\_all | .998672 .0160844 -0.08 0.934 .9676396 1.0307

sp75\_502\_c\_lag\_all | .9720643 .0293136 -0.94 0.347 .9162757 1.03125

sp75\_602\_c\_lag\_all | 1.002528 .0058405 0.43 0.665 .9911459 1.014041

sp75\_812\_c\_lag\_all | .9578517 .0220756 -1.87 0.062 .9155469 1.002111

sp75\_1003\_c\_lag\_all | 1.002871 .0019373 1.48 0.138 .9990809 1.006675

sp75\_153\_c\_lag\_all | .9918112 .0430568 -0.19 0.850 .9109119 1.079895

sp75\_203\_c\_lag\_all | .9978293 .0014939 -1.45 0.147 .9949055 1.000762

sp75\_213\_c\_lag\_all | 1.07817 .0256161 3.17 0.002 1.029114 1.129564

sp75\_343\_c\_lag\_all | .9827362 .0131251 -1.30 0.192 .9573454 1.008801

sp75\_373\_c\_lag\_all | .8245429 .1146575 -1.39 0.165 .6278396 1.082874

sp75\_503\_c\_lag\_all | .9997294 .0003124 -0.87 0.386 .9991174 1.000342

sp75\_523\_c\_lag\_all | .9924164 .0035598 -2.12 0.034 .9854637 .9994181

sp75\_523\_3\_c\_lag\_all | .9988184 .0010028 -1.18 0.239 .9968549 1.000786

sp75\_603\_c\_lag\_all | .9984035 .0076681 -0.21 0.835 .9834868 1.013546

sp75\_703\_3\_c\_lag\_all | 1.011102 .0096285 1.16 0.246 .9924057 1.030151

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

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

sp75\_1404\_c\_lag\_all | 1.031216 .0816327 0.39 0.698 .8830135 1.204293

sp75\_1719\_4\_c\_lag\_all | 1.00584 .0075094 0.78 0.435 .9912289 1.020666

sp75\_204\_c\_lag\_all | 1.000039 .0025271 0.02 0.988 .9950983 1.005004

sp75\_334\_c\_lag\_all | .9935818 .0048121 -1.33 0.184 .9841949 1.003058

sp75\_524\_c\_lag\_all | 1.006043 .0354695 0.17 0.864 .9388712 1.07802

sp75\_604\_c\_lag\_all | 1.000523 .0004797 1.09 0.276 .9995831 1.001463

sp75\_703\_4\_c\_lag\_all | 1.142662 .0440097 3.46 0.001 1.05958 1.232259

sp48\_25\_c\_lag\_all | .9690158 .0108109 -2.82 0.005 .9480569 .9904381

sp48\_5\_c\_lag\_all | 1.033792 .0177205 1.94 0.053 .9996378 1.069114

sp75\_1315\_c\_lag\_all | .8679657 .1038712 -1.18 0.237 .6864952 1.097407

sp75\_1403\_5\_c\_lag\_all | .9983934 .0007017 -2.29 0.022 .9970191 .9997696

sp75\_1405\_c\_lag\_all | 1.00126 .0026029 0.48 0.628 .9961718 1.006375

sp75\_155\_c\_lag\_all | .8238508 .0833082 -1.92 0.055 .6757322 1.004437

sp75\_1725\_c\_lag\_all | .9993634 .0004182 -1.52 0.128 .998544 1.000183

sp75\_205\_c\_lag\_all | 1.05922 .0172747 3.53 0.000 1.025897 1.093624

sp75\_215\_c\_lag\_all | .9994262 .0851646 -0.01 0.995 .8457011 1.181094

sp75\_505\_c\_lag\_all | 1.014363 .0267817 0.54 0.589 .9632069 1.068236

sp75\_605\_c\_lag\_all | 1.002912 .0028295 1.03 0.303 .9973817 1.008473

sp48\_26\_c\_lag\_all | .9984092 .0109755 -0.14 0.885 .9771276 1.020154

sp48\_6\_c\_lag\_all | 1.011509 .0099317 1.17 0.244 .9922294 1.031163

sp75\_1316\_c\_lag\_all | .9858961 .0277206 -0.51 0.613 .9330347 1.041752

sp75\_1403\_6\_c\_lag\_all | .9999884 .0007928 -0.01 0.988 .9984357 1.001544

sp75\_156\_c\_lag\_all | .8195345 .0653773 -2.49 0.013 .7009123 .9582322

sp75\_1906\_c\_lag\_all | 1.008678 .004586 1.90 0.057 .9997295 1.017707

sp75\_1916\_c\_lag\_all | .9914309 .0061509 -1.39 0.165 .9794482 1.00356

sp75\_606\_c\_lag\_all | 1.00007 .0006909 0.10 0.920 .9987164 1.001425

sp75\_816\_c\_lag\_all | .9967135 .0050097 -0.65 0.512 .9869429 1.006581

sp75\_906\_c\_lag\_all | .9854685 .0306529 -0.47 0.638 .9271847 1.047416

sp48\_27\_c\_lag\_all | 1.003994 .0115313 0.35 0.729 .9816459 1.026852

sp48\_7\_c\_lag\_all | .9804696 .0098319 -1.97 0.049 .9613876 .9999302

sp75\_1403\_7\_c\_lag\_all | .9959294 .0062488 -0.65 0.516 .983757 1.008252

sp75\_207\_c\_lag\_all | 1.014917 .0214116 0.70 0.483 .9738065 1.057762

sp75\_327\_c\_lag\_all | 1.055186 .1456157 0.39 0.697 .8051251 1.382913

sp75\_337\_c\_lag\_all | .9996935 .0064093 -0.05 0.962 .9872101 1.012335

sp75\_507\_c\_lag\_all | 1.013202 .0095015 1.40 0.162 .9947494 1.031997

sp75\_607\_c\_lag\_all | 1.002092 .0059878 0.35 0.727 .9904247 1.013897

sp75\_807\_c\_lag\_all | 1.002372 .0010714 2.22 0.027 1.000275 1.004474

sp75\_817\_c\_lag\_all | .9823168 .0436585 -0.40 0.688 .9003688 1.071723

sp48\_28\_c\_lag\_all | .9845097 .0068258 -2.25 0.024 .9712219 .9979793

sp48\_8\_c\_lag\_all | 1.032394 .0208142 1.58 0.114 .9923948 1.074006

sp75\_1318\_c\_lag\_all | .9374732 .0690725 -0.88 0.381 .8114146 1.083116

sp75\_1403\_8\_c\_lag\_all | .9990683 .0007502 -1.24 0.214 .997599 1.00054

sp75\_208\_c\_lag\_all | .999372 .0020632 -0.30 0.761 .9953364 1.003424

sp75\_388\_c\_lag\_all | 1.013079 .0107345 1.23 0.220 .9922568 1.034338

sp75\_209\_c\_lag\_all | 1.002076 .0088497 0.23 0.814 .98488 1.019572

sp75\_389\_c\_lag\_all | .9873098 .0269292 -0.47 0.640 .9359156 1.041526

sp75\_509\_c\_lag\_all | 1.001205 .0203575 0.06 0.953 .9620897 1.041911

sp75\_100\_c\_lag\_all | 1.05358 .0307408 1.79 0.074 .9950197 1.115587

sp75\_1400\_c\_lag\_all | 1.004313 .0041599 1.04 0.299 .9961925 1.012499

sp75\_1403\_10\_c\_lag\_all | 1.004311 .0017014 2.54 0.011 1.000982 1.007652

sp75\_160\_c\_lag\_all | 1.050973 .064914 0.80 0.421 .9311433 1.186223

sp75\_1720\_c\_lag\_all | 1.007062 .0058641 1.21 0.227 .9956335 1.018621

sp75\_340\_c\_lag\_all | .9966759 .0010123 -3.28 0.001 .9946937 .998662

sp75\_500\_c\_lag\_all | 1.016723 .0108039 1.56 0.119 .9957671 1.038121

sp75\_510\_c\_lag\_all | 1.13292 .0888189 1.59 0.111 .9715535 1.321089

sp75\_810\_c\_lag\_all | 1.005839 .0071093 0.82 0.410 .9920007 1.01987

mine\_time | 1.011477 .0066562 1.73 0.083 .9985149 1.024607

onsite\_insp\_hours | .9999586 .0000409 -1.01 0.311 .9998785 1.000039

|

state |

1 | .7680767 .1727797 -1.17 0.241 .4942262 1.193667

2 | 1.11123 .0548108 2.14 0.032 1.008832 1.224021

3 | .693785 .0852471 -2.98 0.003 .5453001 .8827021

4 | 1.005658 .0899776 0.06 0.950 .8439025 1.198419

5 | .8671678 .0895916 -1.38 0.168 .7082084 1.061806

6 | .7335589 .0341509 -6.66 0.000 .6695873 .8036423

7 | 1.019868 .2200334 0.09 0.927 .6681901 1.55664

8 | .4565646 .0176641 -20.26 0.000 .4232237 .4925321

9 | .5037796 .0916641 -3.77 0.000 .3526647 .7196463

10 | .8309848 .0913788 -1.68 0.092 .669871 1.030849

11 | 2.276377 .4557834 4.11 0.000 1.537496 3.370346

12 | .9840337 .0772643 -0.20 0.838 .8436754 1.147743

13 | 1.529075 .1806693 3.59 0.000 1.212982 1.927539

14 | .4222817 .0829193 -4.39 0.000 .2873824 .6205038

15 | .7011358 .0398822 -6.24 0.000 .6271679 .7838275

17 | .7162283 .1344618 -1.78 0.075 .4957358 1.034791

|

time |

2000 | 1.032087 .0571223 0.57 0.568 .9259883 1.150343

2002 | .8876825 .0506664 -2.09 0.037 .7937314 .9927544

2003 | .8410415 .0576782 -2.52 0.012 .7352626 .9620383

2004 | .7626252 .0471629 -4.38 0.000 .6755701 .8608984

2005 | .6888972 .0422526 -6.08 0.000 .6108677 .7768939

2006 | .679564 .0432096 -6.08 0.000 .5999393 .7697566

2007 | .6606415 .0450067 -6.08 0.000 .5780656 .7550132

2008 | .5895956 .0420531 -7.41 0.000 .5126749 .6780574

2009 | .5314249 .039214 -8.57 0.000 .4598662 .6141188

2010 | .5186289 .0375128 -9.08 0.000 .4500789 .5976196

2011 | .4880635 .0352241 -9.94 0.000 .4236859 .5622229

2012 | .4320843 .0348204 -10.41 0.000 .3689545 .506016

2013 | .4243878 .0360411 -10.09 0.000 .3593145 .5012461

2014 | .4017191 .0341833 -10.72 0.000 .3400098 .4746281

2015 | .3689694 .0325518 -11.30 0.000 .3103804 .438618

|

\_cons | .0001126 7.67e-06 -133.46 0.000 .0000985 .0001286

ln(hours) | 1 (exposure)

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

.

. pause "next"

.

. eststo clear

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

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

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

Fitting Poisson model:

Iteration 0: log pseudolikelihood = -127145.58

Iteration 1: log pseudolikelihood = -57454.56

Iteration 2: log pseudolikelihood = -29260.144

Iteration 3: log pseudolikelihood = -21013.425

Iteration 4: log pseudolikelihood = -19911.449

Iteration 5: log pseudolikelihood = -19760.153

Iteration 6: log pseudolikelihood = -19752.952

Iteration 7: log pseudolikelihood = -19752.924

Iteration 8: log pseudolikelihood = -19752.924

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 = -16771.6

Iteration 1: log pseudolikelihood = -16599.154

Iteration 2: log pseudolikelihood = -16575.363

Iteration 3: log pseudolikelihood = -16575.208

Iteration 4: log pseudolikelihood = -16575.208

Negative binomial regression Number of obs = 6,253

Wald chi2(115) = .

Dispersion = mean Prob > chi2 = .

Log pseudolikelihood = -16575.208 Pseudo R2 = 0.0468

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

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

| Robust

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

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

sp48\_11\_c\_lag\_all | 1.016344 .0092884 1.77 0.076 .9983015 1.034713

sp75\_1311\_c\_lag\_all | .9926232 .0279531 -0.26 0.793 .9393208 1.04895

sp75\_1400\_1\_c\_lag\_all | .962118 .0331801 -1.12 0.263 .8992353 1.029398

sp75\_1404\_1\_c\_lag\_all | .8969609 .0312571 -3.12 0.002 .8377434 .9603643

sp75\_1405\_1\_c\_lag\_all | .9853092 .0462542 -0.32 0.753 .8986981 1.080267

sp75\_500\_1\_c\_lag\_all | .9562948 .0304366 -1.40 0.160 .8984628 1.017849

sp75\_501\_c\_lag\_all | 1.013988 .0124137 1.13 0.257 .9899474 1.038613

sp75\_506\_1\_c\_lag\_all | 1.024856 .011896 2.12 0.034 1.001804 1.048439

sp75\_507\_1\_c\_lag\_all | 1.003739 .0040079 0.93 0.350 .9959145 1.011625

sp75\_508\_1\_c\_lag\_all | .9664661 .046295 -0.71 0.476 .8798587 1.061599

sp75\_512\_1\_c\_lag\_all | .949036 .0320862 -1.55 0.122 .8881867 1.014054

sp75\_811\_c\_lag\_all | 1.000995 .0060602 0.16 0.869 .9891878 1.012944

sp75\_1002\_c\_lag\_all | 1.006203 .0042424 1.47 0.142 .9979228 1.014553

sp75\_1003\_2\_c\_lag\_all | 1.001142 .0154002 0.07 0.941 .971409 1.031786

sp75\_1322\_c\_lag\_all | 1.990212 .2470693 5.54 0.000 1.560376 2.538455

sp75\_1719\_2\_c\_lag\_all | 1.030007 .0215134 1.42 0.157 .9886933 1.073048

sp75\_212\_c\_lag\_all | 1.002345 .0037696 0.62 0.533 .9949834 1.00976

sp75\_332\_c\_lag\_all | .9924065 .0120613 -0.63 0.531 .9690462 1.01633

sp75\_501\_2\_c\_lag\_all | .9955976 .0145268 -0.30 0.762 .9675289 1.024481

sp75\_502\_c\_lag\_all | .9774969 .0252702 -0.88 0.379 .9292021 1.028302

sp75\_602\_c\_lag\_all | 1.000821 .004327 0.19 0.849 .9923762 1.009338

sp75\_812\_c\_lag\_all | .9647941 .0211133 -1.64 0.101 .9242878 1.007076

sp75\_1003\_c\_lag\_all | 1.002618 .0018518 1.42 0.157 .9989954 1.006254

sp75\_153\_c\_lag\_all | 1.013492 .0391612 0.35 0.729 .9395714 1.093227

sp75\_203\_c\_lag\_all | .9982809 .001368 -1.26 0.209 .9956034 1.000966

sp75\_213\_c\_lag\_all | 1.085501 .0224736 3.96 0.000 1.042336 1.130455

sp75\_343\_c\_lag\_all | .9875507 .0113623 -1.09 0.276 .9655302 1.010073

sp75\_373\_c\_lag\_all | .8130287 .111824 -1.50 0.132 .6209141 1.064585

sp75\_503\_c\_lag\_all | .9997118 .0002835 -1.02 0.309 .9991562 1.000268

sp75\_523\_c\_lag\_all | .9931894 .0033659 -2.02 0.044 .9866143 .9998084

sp75\_523\_3\_c\_lag\_all | .998919 .000877 -1.23 0.218 .9972015 1.000639

sp75\_603\_c\_lag\_all | .997935 .0068113 -0.30 0.762 .984674 1.011375

sp75\_703\_3\_c\_lag\_all | 1.013274 .0087161 1.53 0.125 .9963337 1.030502

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

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

sp75\_1404\_c\_lag\_all | 1.030318 .0619637 0.50 0.619 .9157561 1.159212

sp75\_1719\_4\_c\_lag\_all | 1.005299 .006438 0.83 0.409 .9927602 1.017997

sp75\_204\_c\_lag\_all | 1.000187 .0021887 0.09 0.932 .9959068 1.004486

sp75\_334\_c\_lag\_all | .9926394 .0044425 -1.65 0.099 .9839704 1.001385

sp75\_524\_c\_lag\_all | 1.004891 .0359505 0.14 0.892 .9368433 1.077882

sp75\_604\_c\_lag\_all | 1.000345 .0004104 0.84 0.401 .9995409 1.00115

sp75\_703\_4\_c\_lag\_all | 1.151006 .0400927 4.04 0.000 1.075048 1.23233

sp48\_25\_c\_lag\_all | .9694728 .01007 -2.98 0.003 .9499354 .9894119

sp48\_5\_c\_lag\_all | 1.028665 .015167 1.92 0.055 .9993636 1.058825

sp75\_1315\_c\_lag\_all | .9042049 .0831033 -1.10 0.273 .755153 1.082677

sp75\_1403\_5\_c\_lag\_all | .9986562 .0006439 -2.09 0.037 .9973949 .999919

sp75\_1405\_c\_lag\_all | 1.001554 .0023995 0.65 0.517 .9968621 1.006268

sp75\_155\_c\_lag\_all | .8572425 .0768928 -1.72 0.086 .7190395 1.022009

sp75\_1725\_c\_lag\_all | .9994066 .0003677 -1.61 0.107 .9986862 1.000127

sp75\_205\_c\_lag\_all | 1.063615 .0167913 3.91 0.000 1.031208 1.09704

sp75\_215\_c\_lag\_all | 1.036045 .0722918 0.51 0.612 .9036176 1.18788

sp75\_505\_c\_lag\_all | 1.011702 .0253687 0.46 0.643 .9631819 1.062665

sp75\_605\_c\_lag\_all | 1.000962 .0025257 0.38 0.703 .9960242 1.005925

sp48\_26\_c\_lag\_all | 1.002622 .0105771 0.25 0.804 .9821046 1.023569

sp48\_6\_c\_lag\_all | 1.013902 .0092247 1.52 0.129 .9959821 1.032144

sp75\_1316\_c\_lag\_all | .9851216 .0281257 -0.53 0.600 .9315102 1.041819

sp75\_1403\_6\_c\_lag\_all | 1.000067 .0007047 0.10 0.924 .9986869 1.001449

sp75\_156\_c\_lag\_all | .8208726 .0548937 -2.95 0.003 .7200354 .9358314

sp75\_1906\_c\_lag\_all | 1.00673 .0039739 1.70 0.089 .9989712 1.014549

sp75\_1916\_c\_lag\_all | .9943382 .0054956 -1.03 0.304 .9836251 1.005168

sp75\_606\_c\_lag\_all | 1.000076 .0006132 0.12 0.902 .9988745 1.001278

sp75\_816\_c\_lag\_all | 1.000636 .0044166 0.14 0.886 .9920168 1.00933

sp75\_906\_c\_lag\_all | .9725563 .0270629 -1.00 0.317 .9209345 1.027072

sp48\_27\_c\_lag\_all | 1.002244 .0105574 0.21 0.832 .9817636 1.023151

sp48\_7\_c\_lag\_all | .9822937 .0088869 -1.97 0.048 .9650293 .999867

sp75\_1403\_7\_c\_lag\_all | .9970738 .0053318 -0.55 0.584 .9866782 1.007579

sp75\_207\_c\_lag\_all | 1.024176 .0197189 1.24 0.215 .986248 1.063563

sp75\_327\_c\_lag\_all | 1.008766 .1146293 0.08 0.939 .8073574 1.26042

sp75\_337\_c\_lag\_all | .9992713 .0056828 -0.13 0.898 .9881951 1.010472

sp75\_507\_c\_lag\_all | 1.008836 .0078425 1.13 0.258 .9935815 1.024325

sp75\_607\_c\_lag\_all | 1.001281 .0055775 0.23 0.818 .9904085 1.012272

sp75\_807\_c\_lag\_all | 1.00185 .0009064 2.04 0.041 1.000075 1.003628

sp75\_817\_c\_lag\_all | .9854364 .0418593 -0.35 0.730 .906716 1.070991

sp48\_28\_c\_lag\_all | .9865191 .0064758 -2.07 0.039 .9739081 .9992934

sp48\_8\_c\_lag\_all | 1.017659 .0172459 1.03 0.302 .9844131 1.052028

sp75\_1318\_c\_lag\_all | .9650185 .0572984 -0.60 0.549 .8590039 1.084117

sp75\_1403\_8\_c\_lag\_all | .9990505 .0006512 -1.46 0.145 .997775 1.000328

sp75\_208\_c\_lag\_all | 1.000282 .0018229 0.15 0.877 .9967153 1.003861

sp75\_388\_c\_lag\_all | 1.01391 .0098051 1.43 0.153 .9948738 1.033311

sp75\_209\_c\_lag\_all | 1.000406 .0080817 0.05 0.960 .9846912 1.016372

sp75\_389\_c\_lag\_all | .9885909 .0243168 -0.47 0.641 .9420615 1.037418

sp75\_509\_c\_lag\_all | 1.009762 .0196016 0.50 0.617 .9720656 1.048921

sp75\_100\_c\_lag\_all | 1.052133 .0289178 1.85 0.064 .9969546 1.110365

sp75\_1400\_c\_lag\_all | 1.004938 .0036996 1.34 0.181 .9977132 1.012216

sp75\_1403\_10\_c\_lag\_all | 1.003157 .0014462 2.19 0.029 1.000326 1.005995

sp75\_160\_c\_lag\_all | 1.042515 .0586666 0.74 0.459 .9336445 1.16408

sp75\_1720\_c\_lag\_all | 1.005888 .0053971 1.09 0.274 .995365 1.016522

sp75\_340\_c\_lag\_all | .9969559 .000919 -3.31 0.001 .9951563 .9987587

sp75\_500\_c\_lag\_all | 1.012388 .0091317 1.37 0.172 .9946479 1.030445

sp75\_510\_c\_lag\_all | 1.114437 .0756753 1.60 0.111 .975563 1.273081

sp75\_810\_c\_lag\_all | 1.007394 .0059028 1.26 0.209 .9958913 1.01903

mine\_time | 1.012544 .0062707 2.01 0.044 1.000328 1.024909

onsite\_insp\_hours | .9999685 .0000383 -0.82 0.410 .9998934 1.000043

|

state |

1 | .7529774 .158172 -1.35 0.177 .4988578 1.136546

2 | 1.233979 .0577499 4.49 0.000 1.125828 1.35252

3 | .6870289 .0813119 -3.17 0.002 .5447945 .8663975

4 | 1.00492 .0807522 0.06 0.951 .8584828 1.176336

5 | .8899641 .0907581 -1.14 0.253 .7287312 1.08687

6 | .7597952 .0330843 -6.31 0.000 .6976412 .8274867

7 | 1.041196 .2100151 0.20 0.841 .7011976 1.546054

8 | .4419102 .0169677 -21.27 0.000 .4098746 .4764497

9 | .5832802 .0919117 -3.42 0.001 .4282991 .7943414

10 | .8696285 .0846292 -1.44 0.151 .7186176 1.052373

11 | 2.326563 .4294676 4.57 0.000 1.620276 3.340726

12 | 1.047846 .0732911 0.67 0.504 .9136092 1.201806

13 | 1.485624 .1572761 3.74 0.000 1.207247 1.828191

14 | .4023828 .0808135 -4.53 0.000 .2714478 .5964754

15 | .7244988 .0377168 -6.19 0.000 .6542216 .8023252

17 | .7199315 .1221905 -1.94 0.053 .5162033 1.004064

|

time |

2000 | 1.049901 .0458567 1.11 0.265 .963763 1.143738

2002 | .9126709 .0414382 -2.01 0.044 .8349624 .9976116

2003 | .8340149 .0440212 -3.44 0.001 .7520479 .9249157

2004 | .7813481 .0385878 -5.00 0.000 .7092625 .8607601

2005 | .7111857 .0359119 -6.75 0.000 .6441707 .7851726

2006 | .7049329 .0365919 -6.74 0.000 .6367417 .7804269

2007 | .6945177 .039693 -6.38 0.000 .6209198 .7768391

2008 | .6123215 .0362402 -8.29 0.000 .545257 .6876346

2009 | .5446696 .0331521 -9.98 0.000 .4834189 .613681

2010 | .5312266 .032636 -10.30 0.000 .4709622 .5992025

2011 | .4962309 .0306845 -11.33 0.000 .4395918 .5601676

2012 | .4337417 .0295932 -12.24 0.000 .3794508 .4958003

2013 | .4142392 .0298251 -12.24 0.000 .3597204 .4770209

2014 | .4048809 .0305355 -11.99 0.000 .3492456 .4693791

2015 | .3774219 .0298825 -12.31 0.000 .3231715 .4407794

|

\_cons | .0001076 5.91e-06 -166.39 0.000 .0000966 .0001198

ln(hours) | 1 (exposure)

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

/lnalpha | -1.286466 .0602823 -1.404617 -1.168314

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

alpha | .2762454 .0166527 .2454611 .3108905

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

(est1 stored)

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

. est store nbin

.

. pause "next"

.

. // test for over-dispersion

. lrtest pois nbin, stats force

Likelihood-ratio test LR chi2(1) = 6355.43

(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 -19752.92 116 39737.85 40519.78

nbin | 6,253 -17389.65 -16575.21 117 33384.42 34173.09

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

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

.

. pause "next"

.

. // final model + diagnostics/assessment

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

. predict cv4\_yhat

(option n assumed; predicted number of events)

. gen cv4\_res = dv - cv4\_yhat

.

. summ dv cv4\_yhat

Variable | Obs Mean Std. Dev. Min Max

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

dv | 6,253 9.976651 14.85334 0 200

cv4\_yhat | 6,253 10.39523 14.81224 .0032476 182.7355

. /\*

> pause "next"

>

> scatter dv cv4\_yhat

>

> pause "next"

>

> scatter cv4\_res dv

>

> pause "next"

>

> scatter cv4\_res cv4\_yhat

> \*/

. pause "complete: C.V.4"