. // Model C.V.1

.

. // poisson model

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

Iteration 0: log pseudolikelihood = -22324.639

Iteration 1: log pseudolikelihood = -19969.774

Iteration 2: log pseudolikelihood = -19959.232

Iteration 3: log pseudolikelihood = -19959.227

Iteration 4: log pseudolikelihood = -19959.227

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,134

Scale parameter = 1

Deviance = 20390.47351 (1/df) Deviance = 3.324172

Pearson = 24697.85682 (1/df) Pearson = 4.026387

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

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

AIC = 6.42195

Log pseudolikelihood = -19959.22685 BIC = -33225.7

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

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

| Robust

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

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

sp48\_11 | 1.019213 .0310906 0.62 0.533 .960062 1.082008

sp75\_1311 | .9806364 .0749808 -0.26 0.798 .8441584 1.139179

sp75\_1400\_1 | 1.005511 .1775777 0.03 0.975 .7113136 1.421389

sp75\_1404\_1 | .8907999 .0627426 -1.64 0.101 .7759372 1.022666

sp75\_1405\_1 | 1.231642 .0507647 5.05 0.000 1.136057 1.335268

sp75\_500\_1 | .8295825 .1597713 -0.97 0.332 .5687542 1.210026

sp75\_501 | 1.152951 .111405 1.47 0.141 .9540313 1.393346

sp75\_506\_1 | 1.058773 .0452245 1.34 0.181 .9737435 1.151227

sp75\_507\_1 | .9926893 .0164768 -0.44 0.658 .960915 1.025514

sp75\_508\_1 | .5013249 .0470618 -7.36 0.000 .4170737 .6025952

sp75\_512\_1 | 1.063689 .1113367 0.59 0.555 .866401 1.305901

sp75\_811 | .9781556 .0254957 -0.85 0.397 .9294399 1.029425

sp75\_1002 | .9936247 .0143229 -0.44 0.657 .9659451 1.022097

sp75\_1003\_2 | .9529899 .0453889 -1.01 0.312 .8680553 1.046235

sp75\_1322 | 1.76164 .2911768 3.43 0.001 1.274161 2.435622

sp75\_1719\_2 | .9660396 .041795 -0.80 0.425 .8874998 1.05153

sp75\_212 | 1.082841 .0248746 3.46 0.001 1.035169 1.132709

sp75\_332 | .9655417 .0655672 -0.52 0.606 .8452173 1.102995

sp75\_501\_2 | .9318715 .0650566 -1.01 0.312 .8127018 1.068516

sp75\_502 | 1.063251 .1055578 0.62 0.537 .8752454 1.29164

sp75\_602 | 1.002426 .0159329 0.15 0.879 .9716793 1.034145

sp75\_812 | 1.029663 .083808 0.36 0.719 .8778349 1.207752

sp75\_1003 | .9694081 .0107333 -2.81 0.005 .9485978 .9906749

sp75\_153 | 1.198514 .1869053 1.16 0.246 .8828776 1.626994

sp75\_203 | 1.015093 .0081786 1.86 0.063 .9991888 1.03125

sp75\_213 | 1.1922 .0539269 3.89 0.000 1.091055 1.302722

sp75\_343 | 1.028823 .0430967 0.68 0.498 .9477294 1.116855

sp75\_373 | .9358954 .2291275 -0.27 0.787 .5792082 1.512237

sp75\_503 | 1.001875 .001831 1.03 0.305 .9982931 1.00547

sp75\_523 | .9570129 .0170659 -2.46 0.014 .9241422 .9910529

sp75\_523\_3 | .9884279 .0051605 -2.23 0.026 .9783651 .9985941

sp75\_603 | 1.058287 .0305422 1.96 0.050 1.000087 1.119874

sp75\_703\_3 | .9979322 .032877 -0.06 0.950 .9355309 1.064496

sp48\_24 | 1.124811 .0100512 13.16 0.000 1.105282 1.144684

sp48\_4 | .7810362 .2154239 -0.90 0.370 .4548774 1.341059

sp75\_1404 | 1.081511 .1274221 0.67 0.506 .8585068 1.362443

sp75\_1719\_4 | 1.023688 .0190533 1.26 0.208 .9870168 1.061721

sp75\_204 | .9991988 .0102895 -0.08 0.938 .979234 1.019571

sp75\_334 | 1.011053 .0204284 0.54 0.586 .9717968 1.051896

sp75\_524 | 1.163617 .177736 0.99 0.321 .8625686 1.569735

sp75\_604 | 1.009529 .0032781 2.92 0.003 1.003125 1.015975

sp75\_703\_4 | .4310393 .1796726 -2.02 0.043 .190417 .9757265

sp48\_25 | .9562421 .0363353 -1.18 0.239 .8876135 1.030177

sp48\_5 | 1.129811 .0515614 2.67 0.007 1.03314 1.235527

sp75\_1315 | 1.104835 .3461611 0.32 0.750 .597865 2.041697

sp75\_1403\_5 | .9934942 .0046322 -1.40 0.162 .9844566 1.002615

sp75\_1405 | .9870355 .0090998 -1.42 0.157 .9693604 1.005033

sp75\_155 | 1.201974 .2240234 0.99 0.324 .8341587 1.731976

sp75\_1725 | .9987571 .0021729 -0.57 0.568 .9945075 1.003025

sp75\_205 | 1.205276 .1587915 1.42 0.156 .930986 1.560377

sp75\_215 | 1.249516 .1185858 2.35 0.019 1.037429 1.504962

sp75\_505 | .9752666 .1075409 -0.23 0.820 .7857111 1.210553

sp75\_605 | .9927885 .0112022 -0.64 0.521 .9710736 1.014989

sp48\_26 | 1.106189 .0399082 2.80 0.005 1.030672 1.18724

sp48\_6 | 1.032615 .0306859 1.08 0.280 .9741895 1.094544

sp75\_1316 | .8002283 .1110997 -1.61 0.108 .6095892 1.050487

sp75\_1403\_6 | .9957601 .0033817 -1.25 0.211 .9891541 1.00241

sp75\_156 | .8130125 .0733789 -2.29 0.022 .6811952 .9703376

sp75\_1906 | 1.088822 .0206496 4.49 0.000 1.049093 1.130056

sp75\_1916 | 1.002037 .0283999 0.07 0.943 .9478922 1.059275

sp75\_606 | 1.002243 .0061242 0.37 0.714 .9903118 1.014319

sp75\_816 | 1.011469 .0157788 0.73 0.465 .9810108 1.042872

sp75\_906 | .7645718 .0616379 -3.33 0.001 .6528246 .8954473

sp48\_27 | .9717826 .0481386 -0.58 0.563 .8818682 1.070865

sp48\_7 | 1.006504 .0253915 0.26 0.797 .9579482 1.057521

sp75\_1403\_7 | .993176 .018273 -0.37 0.710 .9579997 1.029644

sp75\_207 | 1.061133 .0966695 0.65 0.515 .8876159 1.26857

sp75\_327 | .8863558 .0887293 -1.21 0.228 .7284469 1.078495

sp75\_337 | .9757209 .0177231 -1.35 0.176 .9415953 1.011083

sp75\_507 | 1.060762 .0279857 2.24 0.025 1.007305 1.117056

sp75\_607 | .9929676 .0258321 -0.27 0.786 .9436066 1.044911

sp75\_807 | 1.012209 .0059483 2.07 0.039 1.000617 1.023935

sp75\_817 | .8288179 .0793562 -1.96 0.050 .6870049 .9999043

sp48\_28 | .9769046 .0512056 -0.45 0.656 .8815267 1.082602

sp48\_8 | 1.0702 .0567422 1.28 0.201 .9645707 1.187397

sp75\_1318 | 1.138197 .1086967 1.36 0.175 .9439052 1.372481

sp75\_1403\_8 | .989375 .0038996 -2.71 0.007 .9817614 .9970477

sp75\_208 | 1.002951 .0117106 0.25 0.801 .9802597 1.026168

sp75\_388 | 1.037494 .0369864 1.03 0.302 .9674768 1.112579

sp75\_209 | 1.019276 .0454828 0.43 0.669 .933918 1.112435

sp75\_389 | 1.038556 .1006118 0.39 0.696 .8589505 1.255716

sp75\_509 | 1.243605 .0838526 3.23 0.001 1.089654 1.419307

sp75\_100 | 1.224048 .0978235 2.53 0.011 1.046579 1.43161

sp75\_1400 | 1.031979 .0288912 1.12 0.261 .976879 1.090187

sp75\_1403\_10 | .9998238 .0061187 -0.03 0.977 .987903 1.011888

sp75\_160 | 1.106831 .1675433 0.67 0.503 .822684 1.489119

sp75\_1720 | 1.043135 .0219842 2.00 0.045 1.000925 1.087126

sp75\_340 | .9842783 .0060091 -2.60 0.009 .9725709 .9961267

sp75\_500 | .974337 .0306544 -0.83 0.409 .9160704 1.03631

sp75\_510 | .899863 .0658277 -1.44 0.149 .7796657 1.038591

sp75\_810 | 1.057968 .0156978 3.80 0.000 1.027644 1.089187

mine\_time | 1.010658 .0054312 1.97 0.049 1.000068 1.021359

onsite\_insp\_hours | .9998473 .0000321 -4.76 0.000 .9997844 .9999102

|

state |

1 | .9163203 .0925378 -0.87 0.387 .7517713 1.116886

2 | 1.471492 .0663343 8.57 0.000 1.347057 1.607421

3 | .5964441 .0577189 -5.34 0.000 .4933982 .7210112

4 | .9991185 .0659845 -0.01 0.989 .8778116 1.137189

5 | .9101153 .0687458 -1.25 0.212 .7848753 1.055339

6 | .866105 .0413341 -3.01 0.003 .7887651 .9510282

7 | 1.079295 .1640618 0.50 0.616 .801218 1.453885

8 | .4886924 .0208308 -16.80 0.000 .4495237 .5312739

9 | .6172865 .0235707 -12.63 0.000 .5727751 .6652569

10 | 1.001955 .1054092 0.02 0.985 .8152653 1.231396

11 | 1.599784 .2754 2.73 0.006 1.141638 2.241786

12 | 1.01972 .081375 0.24 0.807 .872075 1.192361

13 | 1.473183 .1390812 4.10 0.000 1.224323 1.772628

14 | .3942965 .0586701 -6.25 0.000 .2945552 .5278118

15 | .7710256 .0499358 -4.02 0.000 .6791103 .8753813

17 | .6731048 .02721 -9.79 0.000 .6218321 .728605

|

time |

2000 | 1.05961 .0349516 1.76 0.079 .9932737 1.130377

2002 | .9624014 .03663 -1.01 0.314 .8932204 1.036941

2003 | .8390014 .0299696 -4.91 0.000 .782271 .8998458

2004 | .834304 .0328422 -4.60 0.000 .7723551 .9012218

2005 | .7272406 .0338948 -6.83 0.000 .6637519 .796802

2006 | .7232629 .0360732 -6.50 0.000 .6559066 .7975362

2007 | .715118 .0376999 -6.36 0.000 .6449168 .7929609

2008 | .6481784 .0345038 -8.15 0.000 .5839604 .7194584

2009 | .5800216 .0323111 -9.78 0.000 .5200277 .6469368

2010 | .569441 .0337668 -9.50 0.000 .5069604 .6396221

2011 | .5162664 .0282642 -12.08 0.000 .4637382 .5747445

2012 | .4532146 .0283532 -12.65 0.000 .4009152 .5123365

2013 | .4355683 .0311706 -11.61 0.000 .3785661 .5011535

2014 | .4602491 .0334196 -10.69 0.000 .3991954 .5306406

2015 | .4213388 .0316511 -11.51 0.000 .3636544 .4881734

|

\_cons | .0000988 4.37e-06 -208.57 0.000 .0000906 .0001077

ln(hours) | 1 (exposure)

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

.

. quietly poisson dv `count\_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 = 20390.47

Prob > chi2(6134) = 0.0000

Pearson goodness-of-fit = 24697.86

Prob > chi2(6134) = 0.0000

.

. pause "next"

.

. // negative binomial model

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

Iteration 0: log pseudolikelihood = -17701.791

Iteration 1: log pseudolikelihood = -17461.583

Iteration 2: log pseudolikelihood = -17456.531

Iteration 3: log pseudolikelihood = -17456.523

Iteration 4: log pseudolikelihood = -17456.523

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 6,134

Scale parameter = 1

Deviance = 3825.076136 (1/df) Deviance = .6235859

Pearson = 5079.9762 (1/df) Pearson = .828167

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

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

AIC = 5.621469

Log pseudolikelihood = -17456.52326 BIC = -49791.09

(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 | 1.045776 .0504062 0.93 0.353 .9515046 1.149387

sp75\_1311 | .8984863 .0844997 -1.14 0.255 .7472377 1.080349

sp75\_1400\_1 | .9920449 .1830496 -0.04 0.965 .6909869 1.424272

sp75\_1404\_1 | .9063449 .1643804 -0.54 0.588 .6352055 1.293221

sp75\_1405\_1 | 1.17931 .0801492 2.43 0.015 1.032233 1.347342

sp75\_500\_1 | .9581772 .1971213 -0.21 0.835 .6402243 1.434034

sp75\_501 | 1.084151 .0901415 0.97 0.331 .9211217 1.276036

sp75\_506\_1 | 1.101585 .0484982 2.20 0.028 1.010516 1.200861

sp75\_507\_1 | .9966899 .01635 -0.20 0.840 .9651543 1.029256

sp75\_508\_1 | .5083109 .103619 -3.32 0.001 .3408884 .7579604

sp75\_512\_1 | 1.017682 .1145144 0.16 0.876 .8162641 1.2688

sp75\_811 | 1.004384 .0317364 0.14 0.890 .9440686 1.068553

sp75\_1002 | .9698314 .0196342 -1.51 0.130 .9321025 1.009087

sp75\_1003\_2 | .9016885 .050438 -1.85 0.064 .8080581 1.006168

sp75\_1322 | 1.176249 .1992092 0.96 0.338 .8439953 1.6393

sp75\_1719\_2 | .9188795 .0821556 -0.95 0.344 .7711767 1.094872

sp75\_212 | 1.105445 .031018 3.57 0.000 1.046292 1.167942

sp75\_332 | .8906998 .0583508 -1.77 0.077 .7833721 1.012732

sp75\_501\_2 | .8789915 .0737958 -1.54 0.124 .7456277 1.036209

sp75\_502 | 1.148204 .1568325 1.01 0.312 .8785244 1.500666

sp75\_602 | 1.001268 .0241282 0.05 0.958 .9550765 1.049692

sp75\_812 | 1.023347 .1046683 0.23 0.821 .8374551 1.250501

sp75\_1003 | .9555538 .0145849 -2.98 0.003 .9273912 .9845717

sp75\_153 | 1.009432 .1240912 0.08 0.939 .7932999 1.284448

sp75\_203 | 1.007645 .0088826 0.86 0.388 .9903847 1.025206

sp75\_213 | 1.131837 .1514433 0.93 0.355 .8707435 1.471219

sp75\_343 | 1.004262 .0433617 0.10 0.922 .922771 1.092949

sp75\_373 | .667929 .3357737 -0.80 0.422 .2493583 1.789109

sp75\_503 | 1.003249 .0023972 1.36 0.175 .9985619 1.007959

sp75\_523 | .9223994 .0178129 -4.18 0.000 .8881393 .9579811

sp75\_523\_3 | .9799634 .0066882 -2.97 0.003 .966942 .9931601

sp75\_603 | 1.078946 .0444253 1.85 0.065 .9952947 1.169628

sp75\_703\_3 | 1.017596 .0475316 0.37 0.709 .9285731 1.115154

sp48\_24 | 1.095076 .0134715 7.38 0.000 1.068988 1.121801

sp48\_4 | .6721835 .1735364 -1.54 0.124 .4052609 1.114913

sp75\_1404 | .9460072 .2365945 -0.22 0.824 .5794429 1.544466

sp75\_1719\_4 | .9825434 .0219793 -0.79 0.431 .9403956 1.02658

sp75\_204 | 1.014656 .0123243 1.20 0.231 .9907863 1.039101

sp75\_334 | 1.002804 .024618 0.11 0.909 .955696 1.052234

sp75\_524 | .9140114 .1476914 -0.56 0.578 .6659005 1.254567

sp75\_604 | 1.010779 .003999 2.71 0.007 1.002971 1.018647

sp75\_703\_4 | .3642789 .1890682 -1.95 0.052 .1317174 1.007453

sp48\_25 | .9898516 .0536856 -0.19 0.851 .8900293 1.10087

sp48\_5 | 1.112003 .0966715 1.22 0.222 .9377928 1.318574

sp75\_1315 | .7593926 .3010745 -0.69 0.488 .3491343 1.651734

sp75\_1403\_5 | .9857973 .0063804 -2.21 0.027 .9733709 .9983823

sp75\_1405 | .9752354 .0128778 -1.90 0.058 .9503192 1.000805

sp75\_155 | 1.049387 .2330879 0.22 0.828 .6789979 1.621821

sp75\_1725 | 1.005715 .0032619 1.76 0.079 .9993421 1.012129

sp75\_205 | 1.355287 .1752345 2.35 0.019 1.051898 1.74618

sp75\_215 | 1.106007 .0989426 1.13 0.260 .9281325 1.317971

sp75\_505 | 1.00816 .0901173 0.09 0.928 .8461402 1.201203

sp75\_605 | .989262 .0126431 -0.84 0.398 .9647898 1.014355

sp48\_26 | 1.082805 .0477557 1.80 0.071 .9931366 1.180569

sp48\_6 | 1.011253 .0434741 0.26 0.795 .929536 1.100153

sp75\_1316 | .71936 .0970231 -2.44 0.015 .552257 .9370254

sp75\_1403\_6 | .9961138 .0050471 -0.77 0.442 .9862707 1.006055

sp75\_156 | .7554053 .0929015 -2.28 0.023 .5936047 .9613085

sp75\_1906 | 1.097184 .0304546 3.34 0.001 1.039089 1.158528

sp75\_1916 | .9914696 .0305397 -0.28 0.781 .9333838 1.05317

sp75\_606 | .9951629 .0073294 -0.66 0.510 .9809007 1.009632

sp75\_816 | 1.012852 .0238903 0.54 0.588 .9670935 1.060775

sp75\_906 | .7281005 .0846719 -2.73 0.006 .5797008 .9144897

sp48\_27 | 1.049961 .0658411 0.78 0.437 .9285299 1.187273

sp48\_7 | 1.0777 .0426922 1.89 0.059 .9971905 1.164709

sp75\_1403\_7 | .9824722 .0226134 -0.77 0.442 .9391355 1.027809

sp75\_207 | 1.000307 .0762015 0.00 0.997 .8615694 1.161385

sp75\_327 | .769436 .0812447 -2.48 0.013 .6255964 .9463478

sp75\_337 | .9732552 .0219883 -1.20 0.230 .9310992 1.01732

sp75\_507 | 1.076595 .0410263 1.94 0.053 .9991147 1.160085

sp75\_607 | 1.006468 .0267349 0.24 0.808 .9554093 1.060256

sp75\_807 | 1.022032 .0074048 3.01 0.003 1.007622 1.036649

sp75\_817 | .8569622 .1924521 -0.69 0.492 .5518274 1.330822

sp48\_28 | .9754382 .0574687 -0.42 0.673 .8690617 1.094836

sp48\_8 | 1.183727 .1070862 1.86 0.062 .9913965 1.41337

sp75\_1318 | 1.137095 .1912978 0.76 0.445 .8177035 1.581239

sp75\_1403\_8 | .9923897 .0053343 -1.42 0.155 .9819896 1.0029

sp75\_208 | 1.000702 .012584 0.06 0.955 .9763393 1.025673

sp75\_388 | 1.064901 .0507399 1.32 0.187 .9699546 1.169141

sp75\_209 | 1.021736 .0442529 0.50 0.620 .9385813 1.112258

sp75\_389 | .8697059 .1166435 -1.04 0.298 .6686683 1.131186

sp75\_509 | 1.218633 .0817504 2.95 0.003 1.068492 1.389872

sp75\_100 | 1.420534 .1506219 3.31 0.001 1.153977 1.748663

sp75\_1400 | 1.054122 .0409606 1.36 0.175 .9768219 1.13754

sp75\_1403\_10 | .9958269 .00893 -0.47 0.641 .9784773 1.013484

sp75\_160 | 1.420606 .4651556 1.07 0.284 .7477579 2.698898

sp75\_1720 | 1.050853 .0273643 1.90 0.057 .9985657 1.105878

sp75\_340 | .9964433 .0081956 -0.43 0.665 .980509 1.012637

sp75\_500 | .9719857 .0337078 -0.82 0.413 .9081148 1.040349

sp75\_510 | .9417779 .100274 -0.56 0.573 .7643961 1.160322

sp75\_810 | 1.016815 .0256822 0.66 0.509 .9677041 1.068418

mine\_time | 1.01522 .0060824 2.52 0.012 1.003368 1.027211

onsite\_insp\_hours | .9998182 .0000383 -4.75 0.000 .9997431 .9998933

|

state |

1 | .8266834 .1148262 -1.37 0.171 .629662 1.085353

2 | .9983917 .0495229 -0.03 0.974 .9058976 1.10033

3 | .6407398 .0832988 -3.42 0.001 .4966174 .8266876

4 | .9487273 .0693636 -0.72 0.472 .8220687 1.0949

5 | .7747849 .0616257 -3.21 0.001 .6629448 .9054927

6 | .7495278 .036189 -5.97 0.000 .6818513 .8239215

7 | 1.056202 .2270766 0.25 0.799 .6930176 1.609718

8 | .4642415 .0229564 -15.52 0.000 .4213594 .5114878

9 | .5282345 .0257364 -13.10 0.000 .4801255 .5811639

10 | .8483887 .099795 -1.40 0.162 .6737038 1.068368

11 | 1.450022 .263456 2.05 0.041 1.015591 2.070286

12 | .9915338 .0752998 -0.11 0.911 .8544073 1.150668

13 | 1.533227 .1719311 3.81 0.000 1.230709 1.910105

14 | .4043099 .072339 -5.06 0.000 .2847198 .5741312

15 | .7067884 .039956 -6.14 0.000 .6326586 .7896041

17 | .6160341 .0312807 -9.54 0.000 .5576772 .6804977

|

time |

2000 | 1.024848 .0571838 0.44 0.660 .9186803 1.143284

2002 | .9098403 .0541593 -1.59 0.112 .8096483 1.022431

2003 | .8546571 .0599283 -2.24 0.025 .7449136 .9805685

2004 | .7776414 .0476653 -4.10 0.000 .6896126 .8769071

2005 | .6859375 .0423356 -6.11 0.000 .6077836 .774141

2006 | .6732835 .0434621 -6.13 0.000 .5932679 .7640909

2007 | .6429058 .0442638 -6.42 0.000 .5617492 .7357872

2008 | .5742816 .0420084 -7.58 0.000 .4975767 .6628111

2009 | .534067 .0390712 -8.57 0.000 .4627258 .6164074

2010 | .5247917 .0377143 -8.97 0.000 .4558429 .6041695

2011 | .4919607 .0353117 -9.88 0.000 .4273988 .5662752

2012 | .4411909 .0360215 -10.02 0.000 .3759493 .5177545

2013 | .4387735 .0380531 -9.50 0.000 .3701853 .5200699

2014 | .4168469 .0351475 -10.38 0.000 .3533503 .4917539

2015 | .3892722 .0330048 -11.13 0.000 .3296731 .4596458

|

\_cons | .0001122 7.58e-06 -134.58 0.000 .0000983 .0001281

ln(hours) | 1 (exposure)

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

.

. pause "next"

.

. eststo clear

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

Fitting Poisson model:

Iteration 0: log pseudolikelihood = -324613.78

Iteration 1: log pseudolikelihood = -211517.56

Iteration 2: log pseudolikelihood = -126479.58

Iteration 3: log pseudolikelihood = -32372.283

Iteration 4: log pseudolikelihood = -21509.297

Iteration 5: log pseudolikelihood = -20006.385

Iteration 6: log pseudolikelihood = -19959.49

Iteration 7: log pseudolikelihood = -19959.227

Iteration 8: log pseudolikelihood = -19959.227

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 = -16772.916

Iteration 1: log pseudolikelihood = -16620.671

Iteration 2: log pseudolikelihood = -16607.379

Iteration 3: log pseudolikelihood = -16607.329

Iteration 4: log pseudolikelihood = -16607.329

Negative binomial regression Number of obs = 6,253

Wald chi2(118) = .

Dispersion = mean Prob > chi2 = .

Log pseudolikelihood = -16607.329 Pseudo R2 = 0.0450

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

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

| Robust

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

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

sp48\_11 | 1.030141 .0368561 0.83 0.407 .9603786 1.10497

sp75\_1311 | .9239199 .0785381 -0.93 0.352 .7821276 1.091418

sp75\_1400\_1 | .9947899 .1830322 -0.03 0.977 .6936144 1.426739

sp75\_1404\_1 | .9167585 .1454237 -0.55 0.584 .6717853 1.251064

sp75\_1405\_1 | 1.186172 .0656752 3.08 0.002 1.06419 1.322137

sp75\_500\_1 | .9233398 .1937995 -0.38 0.704 .611932 1.393221

sp75\_501 | 1.120213 .0962317 1.32 0.186 .9466256 1.325632

sp75\_506\_1 | 1.090177 .04602 2.05 0.041 1.00361 1.184211

sp75\_507\_1 | 1.001008 .0156085 0.06 0.948 .9708784 1.032072

sp75\_508\_1 | .4883815 .0837302 -4.18 0.000 .3490001 .683428

sp75\_512\_1 | 1.036487 .1133339 0.33 0.743 .8365457 1.284215

sp75\_811 | 1.001645 .0293321 0.06 0.955 .945774 1.060817

sp75\_1002 | .9755012 .0167744 -1.44 0.149 .9431718 1.008939

sp75\_1003\_2 | .9224324 .0472764 -1.58 0.115 .8342744 1.019906

sp75\_1322 | 1.329671 .2235218 1.69 0.090 .9564335 1.848561

sp75\_1719\_2 | .936684 .0704527 -0.87 0.385 .8082952 1.085466

sp75\_212 | 1.095181 .0275375 3.62 0.000 1.042517 1.150506

sp75\_332 | .9241611 .057542 -1.27 0.205 .8179907 1.044112

sp75\_501\_2 | .8792453 .0679328 -1.67 0.096 .7556906 1.023001

sp75\_502 | 1.095071 .124843 0.80 0.426 .8757928 1.369251

sp75\_602 | .9984889 .0211126 -0.07 0.943 .9579547 1.040738

sp75\_812 | 1.02301 .1004076 0.23 0.817 .8439863 1.240009

sp75\_1003 | .9583569 .0136325 -2.99 0.003 .9320067 .9854521

sp75\_153 | 1.028698 .1306627 0.22 0.824 .8019922 1.319488

sp75\_203 | 1.010175 .0084816 1.21 0.228 .9936875 1.026936

sp75\_213 | 1.142344 .1022931 1.49 0.137 .958461 1.361505

sp75\_343 | 1.012497 .0435342 0.29 0.773 .930668 1.101521

sp75\_373 | .7636807 .2937393 -0.70 0.483 .3593427 1.622986

sp75\_503 | 1.003221 .0022564 1.43 0.153 .9988081 1.007653

sp75\_523 | .9298888 .0163611 -4.13 0.000 .8983682 .9625154

sp75\_523\_3 | .9829949 .0060946 -2.77 0.006 .9711221 .9950128

sp75\_603 | 1.078252 .0402207 2.02 0.043 1.002234 1.160036

sp75\_703\_3 | 1.012154 .0385363 0.32 0.751 .9393734 1.090573

sp48\_24 | 1.107367 .0114525 9.86 0.000 1.085146 1.130043

sp48\_4 | .6914823 .1797046 -1.42 0.156 .4154972 1.150785

sp75\_1404 | 1.000606 .2107692 0.00 0.998 .6621627 1.512034

sp75\_1719\_4 | .9930205 .0210735 -0.33 0.741 .9525644 1.035195

sp75\_204 | 1.013349 .0114841 1.17 0.242 .9910889 1.036109

sp75\_334 | 1.007783 .0224187 0.35 0.727 .9647872 1.052695

sp75\_524 | .9889056 .1486001 -0.07 0.941 .7366261 1.327586

sp75\_604 | 1.01083 .0036314 3.00 0.003 1.003738 1.017973

sp75\_703\_4 | .3915257 .1783615 -2.06 0.040 .1603213 .9561574

sp48\_25 | .9777987 .0465787 -0.47 0.637 .8906383 1.073489

sp48\_5 | 1.0938 .0646124 1.52 0.129 .9742186 1.228061

sp75\_1315 | .8904044 .308933 -0.33 0.738 .4510825 1.757594

sp75\_1403\_5 | .9870159 .0058404 -2.21 0.027 .9756351 .9985294

sp75\_1405 | .9788345 .0120126 -1.74 0.081 .9555712 1.002664

sp75\_155 | 1.09378 .2349306 0.42 0.676 .7179632 1.666317

sp75\_1725 | 1.003728 .0028572 1.31 0.191 .9981434 1.009343

sp75\_205 | 1.342451 .1711154 2.31 0.021 1.045683 1.723442

sp75\_215 | 1.145803 .0945982 1.65 0.099 .9746174 1.347056

sp75\_505 | 1.007812 .0810486 0.10 0.923 .8608461 1.179868

sp75\_605 | .9900513 .0117704 -0.84 0.400 .9672485 1.013392

sp48\_26 | 1.093545 .0435041 2.25 0.025 1.011518 1.182223

sp48\_6 | 1.019954 .0386204 0.52 0.602 .9469998 1.098528

sp75\_1316 | .7623408 .1027407 -2.01 0.044 .585373 .9928088

sp75\_1403\_6 | .9963666 .0046482 -0.78 0.435 .9872978 1.005519

sp75\_156 | .7569049 .0768901 -2.74 0.006 .6202576 .9236565

sp75\_1906 | 1.099469 .0279043 3.74 0.000 1.046116 1.155544

sp75\_1916 | .9974096 .0299188 -0.09 0.931 .9404602 1.057808

sp75\_606 | .9974895 .0069194 -0.36 0.717 .9840195 1.011144

sp75\_816 | 1.012315 .0218868 0.57 0.571 .9703138 1.056134

sp75\_906 | .7346107 .0748652 -3.03 0.002 .6016032 .8970246

sp48\_27 | 1.042137 .0620166 0.69 0.488 .9274076 1.17106

sp48\_7 | 1.054158 .0378589 1.47 0.142 .982507 1.131034

sp75\_1403\_7 | .9846552 .0207626 -0.73 0.463 .9447906 1.026202

sp75\_207 | 1.022428 .0746842 0.30 0.761 .8860454 1.179803

sp75\_327 | .8079373 .0809832 -2.13 0.033 .6638317 .9833257

sp75\_337 | .9677976 .0198572 -1.60 0.111 .9296504 1.00751

sp75\_507 | 1.07179 .0373916 1.99 0.047 1.000953 1.14764

sp75\_607 | 1.005921 .0261077 0.23 0.820 .9560304 1.058415

sp75\_807 | 1.019098 .0069717 2.77 0.006 1.005525 1.032854

sp75\_817 | .8684719 .1723831 -0.71 0.477 .5885735 1.281477

sp48\_28 | .9703034 .0592347 -0.49 0.621 .8608821 1.093632

sp48\_8 | 1.134412 .0819991 1.74 0.081 .9845625 1.307069

sp75\_1318 | 1.11787 .1670833 0.75 0.456 .8339996 1.498362

sp75\_1403\_8 | .9917247 .0048933 -1.68 0.092 .9821803 1.001362

sp75\_208 | 1.005986 .0114712 0.52 0.601 .9837527 1.028723

sp75\_388 | 1.048917 .0437988 1.14 0.253 .9664915 1.138371

sp75\_209 | 1.023524 .040722 0.58 0.559 .9467432 1.106532

sp75\_389 | .925033 .1127488 -0.64 0.523 .7284629 1.174646

sp75\_509 | 1.22446 .0787678 3.15 0.002 1.079414 1.388996

sp75\_100 | 1.375938 .1357275 3.24 0.001 1.134053 1.669416

sp75\_1400 | 1.041698 .0316478 1.34 0.179 .98148 1.10561

sp75\_1403\_10 | .996379 .0080195 -0.45 0.652 .9807844 1.012221

sp75\_160 | 1.413513 .4606938 1.06 0.288 .7462344 2.677469

sp75\_1720 | 1.051007 .0255296 2.05 0.041 1.002143 1.102255

sp75\_340 | .9918703 .0075682 -1.07 0.285 .9771472 1.006815

sp75\_500 | .9809036 .0316971 -0.60 0.551 .9207047 1.045038

sp75\_510 | .9327749 .0893676 -0.73 0.468 .7730805 1.125457

sp75\_810 | 1.02865 .0218541 1.33 0.184 .986696 1.072387

mine\_time | 1.012844 .0054816 2.36 0.018 1.002157 1.023645

onsite\_insp\_hours | .9998267 .0000364 -4.75 0.000 .9997553 .9998982

|

state |

1 | .8539163 .1056266 -1.28 0.202 .6700767 1.088193

2 | 1.132642 .0534543 2.64 0.008 1.032573 1.242409

3 | .6296241 .0807614 -3.61 0.000 .4896642 .8095884

4 | .9477089 .0629173 -0.81 0.419 .8320792 1.079407

5 | .7914213 .0610559 -3.03 0.002 .6803619 .9206096

6 | .7665755 .0338537 -6.02 0.000 .703014 .8358838

7 | 1.039477 .2064817 0.19 0.845 .704259 1.534255

8 | .4735612 .0225399 -15.70 0.000 .4313819 .5198648

9 | .5600168 .0248199 -13.08 0.000 .5134236 .6108384

10 | .8906192 .0934968 -1.10 0.270 .7249921 1.094084

11 | 1.485868 .2557646 2.30 0.021 1.06038 2.082087

12 | 1.058163 .0716149 0.84 0.404 .9267114 1.208261

13 | 1.500309 .1517656 4.01 0.000 1.230486 1.829301

14 | .400002 .0705926 -5.19 0.000 .2830359 .5653048

15 | .73139 .0382593 -5.98 0.000 .6601191 .8103558

17 | .640829 .0296533 -9.62 0.000 .5852672 .7016654

|

time |

2000 | 1.043224 .0454243 0.97 0.331 .9578867 1.136163

2002 | .9365329 .044975 -1.37 0.172 .8524049 1.028964

2003 | .849278 .0441398 -3.14 0.002 .7670259 .9403503

2004 | .8041283 .0386791 -4.53 0.000 .7317825 .8836264

2005 | .7120958 .0358304 -6.75 0.000 .6452213 .7859015

2006 | .6998356 .0364957 -6.84 0.000 .6318394 .7751493

2007 | .679106 .0389835 -6.74 0.000 .6068412 .7599764

2008 | .5961539 .0355409 -8.68 0.000 .5304108 .6700458

2009 | .5438243 .0326097 -10.16 0.000 .4835233 .6116454

2010 | .5391136 .0330378 -10.08 0.000 .4780982 .6079158

2011 | .5009542 .0302398 -11.45 0.000 .445057 .5638717

2012 | .4418603 .0297501 -12.13 0.000 .3872347 .5041916

2013 | .4286972 .0305987 -11.87 0.000 .3727307 .4930672

2014 | .4237986 .0309839 -11.74 0.000 .3672216 .4890923

2015 | .4036668 .0301253 -12.16 0.000 .3487375 .467248

|

\_cons | .0001075 5.72e-06 -171.78 0.000 .0000968 .0001193

ln(hours) | 1 (exposure)

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

/lnalpha | -1.26797 .0588985 -1.383409 -1.152531

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

alpha | .2814023 .0165742 .2507224 .3158363

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

(est1 stored)

. esttab using `"`directory'Model.`injury\_label'.`time\_label'.`violation\_level\_label'.C.V.1.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.1.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.1.csv)

. est store nbin

.

. pause "next"

.

. // test for over-dispersion

. lrtest pois nbin, stats force

Likelihood-ratio test LR chi2(1) = 6703.80

(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 -19959.23 119 40156.45 40958.61

nbin | 6,253 -17389.65 -16607.33 120 33454.66 34263.56

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

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

.

. pause "next"

.

. // final model + diagnostics/assessment

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

. predict cv1\_yhat

(option n assumed; predicted number of events)

. gen cv1\_res = dv - cv1\_yhat

.

. summ dv cv1\_yhat

Variable | Obs Mean Std. Dev. Min Max

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

dv | 6,253 9.976651 14.85334 0 200

cv1\_yhat | 6,253 10.41474 15.1347 .0033551 329.6929

. /\*

> pause "next"

>

> scatter dv cv1\_yhat

>

> pause "next"

>

> scatter cv1\_res dv

>

> pause "next"

>

> scatter cv1\_res cv1\_yhat

> \*/

. pause "complete: C.V.1"

.