. // Model SP.C.SSV.2

**. glm MR `subpart\_sigsub\_lag\_1\_vars' `covariates' ib(freq).state ib(freq).time, family(poisson) link(log) vce(cl mineid) exposure(hours) iter(50) eform**

note: sp77\_606\_ss\_1lag omitted because of collinearity

note: sp77\_901\_1\_ss\_1lag omitted because of collinearity

Iteration 0: log pseudolikelihood = -9232.1939

Iteration 1: log pseudolikelihood = -8644.1715

Iteration 2: log pseudolikelihood = -8638.7145

Iteration 3: log pseudolikelihood = -8638.3033

Iteration 4: log pseudolikelihood = -8638.2231

Iteration 5: log pseudolikelihood = -8638.2058

Iteration 6: log pseudolikelihood = -8638.2018

Iteration 7: log pseudolikelihood = -8638.2008

Iteration 8: log pseudolikelihood = -8638.2006

Iteration 9: log pseudolikelihood = -8638.2006

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 5,951

Scale parameter = 1

Deviance = 7701.535495 (1/df) Deviance = 1.294158

Pearson = 8459.272438 (1/df) Pearson = 1.421488

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

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

AIC = 2.859492

Log pseudolikelihood = -8638.200594 BIC = -44315.06

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

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| Robust

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

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

sp47\_41\_ss\_1lag | .6333192 .1855301 -1.56 0.119 .356668 1.124556

sp47\_44\_ss\_1lag | 1.152112 .1696164 0.96 0.336 .8633344 1.537483

sp48\_11\_ss\_1lag | .9559285 .0496454 -0.87 0.385 .8634136 1.058356

sp48\_25\_ss\_1lag | 1.025372 .1153909 0.22 0.824 .8224149 1.278415

sp48\_26\_ss\_1lag | 1.12405 .0833999 1.58 0.115 .9719184 1.299994

sp48\_27\_ss\_1lag | 1.006482 .0817884 0.08 0.937 .8582932 1.180255

sp48\_28\_ss\_1lag | .855247 .0847469 -1.58 0.115 .7042803 1.038574

sp48\_4\_ss\_1lag | 2.435227 .2907052 7.46 0.000 1.927202 3.077171

sp48\_5\_ss\_1lag | 1.007914 .0803285 0.10 0.921 .8621538 1.178318

sp48\_6\_ss\_1lag | .973123 .092527 -0.29 0.774 .8076688 1.172471

sp48\_7\_ss\_1lag | 1.133325 .0607873 2.33 0.020 1.020232 1.258953

sp48\_8\_ss\_1lag | .9936445 .1404752 -0.05 0.964 .7531708 1.310897

sp71\_701\_ss\_1lag | 2.325624 .6113756 3.21 0.001 1.389217 3.893221

sp72\_503\_ss\_1lag | .9218808 .22174 -0.34 0.735 .5753542 1.477115

sp72\_610\_ss\_1lag | .8524697 .2374071 -0.57 0.567 .4938841 1.471407

sp72\_620\_ss\_1lag | 1.68535 .3692371 2.38 0.017 1.096992 2.589266

sp72\_630\_ss\_1lag | 1.021103 .0103519 2.06 0.039 1.001014 1.041596

sp75\_100\_ss\_1lag | 1.275675 .2953369 1.05 0.293 .8103539 2.008192

sp75\_1001\_1\_ss\_1lag | 1.602165 .9210315 0.82 0.412 .5192536 4.943502

sp75\_1001\_ss\_1lag | 1.622333 .7390543 1.06 0.288 .6643166 3.961915

sp75\_1003\_1\_ss\_1lag | .6328981 .1111732 -2.60 0.009 .4485532 .8930045

sp75\_1100\_2\_ss\_1lag | 1.024137 .0139863 1.75 0.081 .9970885 1.05192

sp75\_1101\_20\_ss\_1lag | .7742455 .0961379 -2.06 0.039 .6069951 .9875797

sp75\_1102\_ss\_1lag | .9133397 .048246 -1.72 0.086 .8235097 1.012969

sp75\_1103\_4\_ss\_1lag | 1.044882 .0324283 1.41 0.157 .9832183 1.110413

sp75\_1104\_ss\_1lag | 1.123703 .1447232 0.91 0.365 .8730201 1.446369

sp75\_1106\_2\_ss\_1lag | .9927148 .0602121 -0.12 0.904 .881446 1.11803

sp75\_1106\_3\_ss\_1lag | 1.043185 .0282034 1.56 0.118 .9893467 1.099954

sp75\_1106\_4\_ss\_1lag | 1.040906 .1668692 0.25 0.803 .7602457 1.425177

sp75\_1106\_5\_ss\_1lag | .9712211 .075976 -0.37 0.709 .8331648 1.132153

sp75\_1106\_6\_ss\_1lag | .4542518 .1612441 -2.22 0.026 .226542 .9108452

sp75\_1106\_ss\_1lag | .8853343 .0842705 -1.28 0.201 .7346588 1.066913

sp75\_1107\_14\_ss\_1lag | 1.555904 .4487477 1.53 0.125 .8840615 2.738312

sp75\_1400\_1\_ss\_1lag | .818868 .1569431 -1.04 0.297 .5624369 1.192213

sp75\_1400\_2\_ss\_1lag | .6369798 .3798687 -0.76 0.449 .1979264 2.04997

sp75\_1400\_3\_ss\_1lag | .9950305 .0988628 -0.05 0.960 .8189623 1.208951

sp75\_1400\_4\_ss\_1lag | .7806673 .1477365 -1.31 0.191 .5387426 1.131229

sp75\_1400\_ss\_1lag | 1.109389 .0655462 1.76 0.079 .9880798 1.245591

sp75\_1401\_ss\_1lag | 1.085644 .2313618 0.39 0.700 .7149699 1.648493

sp75\_1403\_10\_ss\_1lag | .989382 .0192287 -0.55 0.583 .9524033 1.027796

sp75\_1403\_11\_ss\_1lag | 2.973717 1.127106 2.88 0.004 1.414735 6.250637

sp75\_1403\_3\_ss\_1lag | .9517332 .4615314 -0.10 0.919 .3679047 2.462039

sp75\_1403\_4\_ss\_1lag | 1.111767 .2667307 0.44 0.659 .6946992 1.779224

sp75\_1403\_5\_ss\_1lag | .9809747 .0104747 -1.80 0.072 .960658 1.001721

sp75\_1403\_6\_ss\_1lag | 1.001268 .0110104 0.12 0.908 .9799189 1.023082

sp75\_1403\_7\_ss\_1lag | .9904267 .0496733 -0.19 0.848 .8977009 1.09273

sp75\_1403\_8\_ss\_1lag | .9829404 .0245717 -0.69 0.491 .9359415 1.032299

sp75\_1403\_9\_ss\_1lag | .9007216 .0862786 -1.09 0.275 .746544 1.08674

sp75\_1404\_1\_ss\_1lag | .5504116 .1875597 -1.75 0.080 .2822473 1.07336

sp75\_1404\_ss\_1lag | .616759 .1694481 -1.76 0.079 .3599621 1.056755

sp75\_1405\_1\_ss\_1lag | 1.19465 .6087691 0.35 0.727 .4400333 3.243362

sp75\_1405\_ss\_1lag | 1.000907 .0158327 0.06 0.954 .9703521 1.032425

sp75\_1431\_ss\_1lag | .9146672 .2669549 -0.31 0.760 .5162157 1.620671

sp75\_1432\_ss\_1lag | 1.94e-06 1.43e-06 -17.77 0.000 4.54e-07 8.26e-06

sp75\_1433\_ss\_1lag | 1.123242 .1670125 0.78 0.434 .8392859 1.503269

sp75\_1434\_ss\_1lag | 1.153568 .1267713 1.30 0.194 .930037 1.430823

sp75\_1435\_ss\_1lag | 1.069724 .4312177 0.17 0.867 .4854484 2.357223

sp75\_1437\_ss\_1lag | 1.35234 .3917665 1.04 0.297 .7664726 2.386025

sp75\_150\_ss\_1lag | 1.286623 .3544351 0.91 0.360 .7498337 2.207689

sp75\_151\_ss\_1lag | .8194535 .1736284 -0.94 0.347 .5409649 1.241308

sp75\_153\_ss\_1lag | 2.029207 1.790246 0.80 0.422 .3600499 11.43642

sp75\_155\_ss\_1lag | 1.148981 .3484827 0.46 0.647 .6340826 2.081996

sp75\_156\_ss\_1lag | 1.875403 .5610162 2.10 0.036 1.043428 3.370751

sp75\_1600\_2\_ss\_1lag | .7972181 .0890614 -2.03 0.042 .6404496 .9923601

sp75\_1712\_10\_ss\_1lag | .9808014 .1791901 -0.11 0.915 .6855965 1.403116

sp75\_1712\_6\_ss\_1lag | .8962024 .4419267 -0.22 0.824 .3409336 2.355822

sp75\_1720\_ss\_1lag | 1.017157 .0364864 0.47 0.635 .9481007 1.091243

sp75\_1721\_ss\_1lag | 1.55e-06 1.19e-06 -17.38 0.000 3.42e-07 6.99e-06

sp75\_1725\_ss\_1lag | 1.000048 .004349 0.01 0.991 .9915606 1.008608

sp75\_1726\_ss\_1lag | 1.12048 .1147487 1.11 0.267 .9167104 1.369544

sp75\_1727\_ss\_1lag | 1.142273 .1911257 0.80 0.427 .8228991 1.585599

sp75\_1728\_ss\_1lag | 1.574089 .2134891 3.35 0.001 1.206655 2.053408

sp75\_1729\_ss\_1lag | 1.219342 .2148558 1.13 0.260 .8632538 1.722315

sp75\_1730\_ss\_1lag | .8443484 .1344365 -1.06 0.288 .6180079 1.153584

sp75\_1731\_ss\_1lag | 1.00485 .0045011 1.08 0.280 .9960664 1.013711

sp75\_1903\_ss\_1lag | 1.015933 .1237938 0.13 0.897 .8001002 1.289989

sp75\_1909\_ss\_1lag | 1.013058 .0150936 0.87 0.384 .9839026 1.043077

sp75\_1910\_ss\_1lag | .9951179 .0247761 -0.20 0.844 .9477235 1.044882

sp75\_1911\_ss\_1lag | .9346168 .0368123 -1.72 0.086 .8651807 1.009626

sp75\_1912\_ss\_1lag | 1.438542 .416351 1.26 0.209 .8157614 2.536776

sp75\_1913\_ss\_1lag | 1.142681 .082062 1.86 0.063 .9926486 1.315389

sp75\_1914\_ss\_1lag | 1.030549 .0118771 2.61 0.009 1.007531 1.054093

sp75\_1915\_ss\_1lag | 1.0658 .2242208 0.30 0.762 .7056704 1.609718

sp75\_202\_ss\_1lag | 1.001662 .0028238 0.59 0.556 .9961427 1.007212

sp75\_208\_ss\_1lag | 1.018213 .0192163 0.96 0.339 .9812376 1.056581

sp75\_211\_ss\_1lag | 1.011365 .0182985 0.62 0.532 .9761289 1.047873

sp75\_212\_ss\_1lag | .990499 .0497754 -0.19 0.849 .8975914 1.093023

sp75\_214\_ss\_1lag | 1.063721 .1519805 0.43 0.665 .803917 1.407486

sp75\_312\_ss\_1lag | 1.106486 .1677386 0.67 0.504 .8220677 1.489308

sp75\_320\_ss\_1lag | 1.00074 .0566885 0.01 0.990 .8955782 1.11825

sp75\_324\_ss\_1lag | 1.029793 .0566645 0.53 0.594 .9245119 1.147063

sp75\_337\_ss\_1lag | 1.065892 .0345758 1.97 0.049 1.000234 1.13586

sp75\_340\_ss\_1lag | 1.025957 .0163384 1.61 0.108 .9944287 1.058484

sp75\_342\_ss\_1lag | 1.006477 .0111351 0.58 0.560 .9848877 1.02854

sp75\_344\_ss\_1lag | .9336791 .0836904 -0.77 0.444 .7832495 1.113

sp75\_352\_ss\_1lag | 1.042365 .0587874 0.74 0.462 .9332834 1.164195

sp75\_382\_ss\_1lag | 1.184912 .144921 1.39 0.165 .932351 1.505887

sp75\_503\_ss\_1lag | .9893784 .0050853 -2.08 0.038 .9794614 .9993959

sp75\_504\_ss\_1lag | .6515025 .130604 -2.14 0.033 .4398243 .965057

sp75\_505\_ss\_1lag | .9550862 .2195758 -0.20 0.842 .6086253 1.498771

sp75\_506\_1\_ss\_1lag | 1.138942 .3378176 0.44 0.661 .6368393 2.036918

sp75\_506\_ss\_1lag | .8810652 .1500197 -0.74 0.457 .6310638 1.230107

sp75\_507\_ss\_1lag | 1.057775 .0828072 0.72 0.473 .9073139 1.233187

sp75\_511\_1\_ss\_1lag | .3159766 .1116337 -3.26 0.001 .1580984 .6315128

sp75\_511\_ss\_1lag | 1.087839 .0536857 1.71 0.088 .9875456 1.198318

sp75\_512\_1\_ss\_1lag | 2.570848 1.064899 2.28 0.023 1.14154 5.789776

sp75\_512\_2\_ss\_1lag | 1.030151 .0463695 0.66 0.509 .9431623 1.125163

sp75\_512\_ss\_1lag | 1.004403 .0073748 0.60 0.550 .9900519 1.018962

sp75\_513\_1\_ss\_1lag | .9613918 .3588995 -0.11 0.916 .4625262 1.998317

sp75\_513\_ss\_1lag | .8025903 .0880376 -2.00 0.045 .6473275 .9950933

sp75\_514\_ss\_1lag | 1.04688 .0236513 2.03 0.043 1.001536 1.094278

sp75\_515\_ss\_1lag | .8944711 .0234925 -4.25 0.000 .8495917 .9417212

sp75\_516\_1\_ss\_1lag | .760289 .2548614 -0.82 0.414 .3941322 1.466613

sp75\_516\_2\_ss\_1lag | .8015193 .2427218 -0.73 0.465 .4427382 1.451045

sp75\_516\_ss\_1lag | 1.035273 .0465245 0.77 0.440 .9479871 1.130596

sp75\_517\_1\_ss\_1lag | .7285982 .1615497 -1.43 0.153 .4717957 1.125181

sp75\_517\_ss\_1lag | .9995508 .0044901 -0.10 0.920 .9907889 1.00839

sp75\_518\_1\_ss\_1lag | .9005378 .0577103 -1.63 0.102 .7942428 1.021058

sp75\_518\_ss\_1lag | 1.056598 .0194203 3.00 0.003 1.019212 1.095355

sp75\_519\_ss\_1lag | .9212336 .7346006 -0.10 0.918 .1930249 4.396693

sp75\_520\_ss\_1lag | .9783146 .0362039 -0.59 0.554 .9098686 1.05191

sp75\_523\_1\_ss\_1lag | .9796857 .030611 -0.66 0.511 .9214895 1.041557

sp75\_523\_2\_ss\_1lag | 1.014463 .0298537 0.49 0.626 .9576068 1.074696

sp75\_523\_ss\_1lag | .898924 .0324347 -2.95 0.003 .8375489 .9647965

sp75\_600\_1\_ss\_1lag | .7293322 .1109519 -2.07 0.038 .5412946 .9826912

sp75\_600\_ss\_1lag | .6100615 .0810959 -3.72 0.000 .4701352 .791634

sp75\_601\_1\_ss\_1lag | 1.003252 .0240952 0.14 0.892 .9571201 1.051607

sp75\_601\_2\_ss\_1lag | .844949 .3845253 -0.37 0.711 .3463058 2.061585

sp75\_601\_3\_ss\_1lag | .8324875 .2503781 -0.61 0.542 .4617121 1.501012

sp75\_601\_ss\_1lag | 1.038271 .0235858 1.65 0.098 .9930578 1.085543

sp75\_602\_ss\_1lag | 1.0617 .0616014 1.03 0.302 .947576 1.18957

sp75\_603\_ss\_1lag | 1.023266 .0702041 0.34 0.737 .8945186 1.170544

sp75\_604\_ss\_1lag | 1.021991 .0060301 3.69 0.000 1.010241 1.033878

sp75\_605\_ss\_1lag | 1.045556 .0355476 1.31 0.190 .9781543 1.117601

sp75\_606\_ss\_1lag | .9879019 .016433 -0.73 0.464 .9562132 1.020641

sp75\_607\_ss\_1lag | 1.010628 .0563507 0.19 0.850 .9060038 1.127335

sp75\_700\_1\_ss\_1lag | .5310177 .1104794 -3.04 0.002 .3531951 .7983684

sp75\_700\_ss\_1lag | .8791824 .0477472 -2.37 0.018 .7904082 .9779273

sp75\_701\_1\_ss\_1lag | .8888586 .0622104 -1.68 0.092 .7749217 1.019548

sp75\_701\_2\_ss\_1lag | 1.152732 .1120902 1.46 0.144 .9527051 1.394755

sp75\_701\_3\_ss\_1lag | 1.136251 .1102242 1.32 0.188 .9395109 1.37419

sp75\_701\_4\_ss\_1lag | 1.618075 .7845678 0.99 0.321 .6255617 4.185303

sp75\_701\_5\_ss\_1lag | .887992 .0719296 -1.47 0.143 .7576343 1.040779

sp75\_701\_ss\_1lag | 1.009926 .0204831 0.49 0.626 .9705672 1.050881

sp75\_703\_2\_ss\_1lag | 1.000572 .1306015 0.00 0.997 .774718 1.292269

sp75\_703\_3\_ss\_1lag | 1.132879 .1657924 0.85 0.394 .8503807 1.509223

sp75\_703\_ss\_1lag | 1.001529 .0519002 0.03 0.976 .9048017 1.108597

sp75\_704\_ss\_1lag | .9667565 .703237 -0.05 0.963 .232347 4.022511

sp75\_705\_1\_ss\_1lag | .8188096 .0655006 -2.50 0.012 .6999888 .9577998

sp75\_705\_8\_ss\_1lag | 1.51e-06 1.52e-06 -13.33 0.000 2.10e-07 .0000108

sp75\_705\_ss\_1lag | 1.125151 .1171673 1.13 0.257 .9174262 1.379909

sp75\_706\_ss\_1lag | 1.013721 .1225685 0.11 0.910 .7998345 1.284804

sp75\_800\_2\_ss\_1lag | 7.14e-07 7.16e-07 -14.12 0.000 1.00e-07 5.09e-06

sp75\_800\_3\_ss\_1lag | .8755827 .3354783 -0.35 0.729 .4132001 1.855384

sp75\_800\_4\_ss\_1lag | 3.886734 1.710846 3.08 0.002 1.640237 9.210072

sp75\_800\_ss\_1lag | 1.016944 .0701311 0.24 0.808 .8883739 1.164121

sp75\_801\_ss\_1lag | .8348633 .2366567 -0.64 0.524 .478991 1.455136

sp75\_802\_ss\_1lag | .683536 .2305239 -1.13 0.259 .3529328 1.323826

sp75\_803\_2\_ss\_1lag | 1.266418 .3745658 0.80 0.425 .7092823 2.26118

sp75\_803\_ss\_1lag | 1.040983 .0806282 0.52 0.604 .8943649 1.211637

sp75\_804\_ss\_1lag | .9706483 .0574079 -0.50 0.614 .8644074 1.089947

sp75\_805\_ss\_1lag | .8546511 .1161667 -1.16 0.248 .6547734 1.115544

sp75\_806\_ss\_1lag | 1.168689 .2403824 0.76 0.449 .7809427 1.748956

sp75\_807\_ss\_1lag | 1.04174 .0239475 1.78 0.075 .9958452 1.089749

sp75\_808\_ss\_1lag | .8980295 .1129197 -0.86 0.392 .7018739 1.149006

sp75\_809\_ss\_1lag | .9708234 .0595103 -0.48 0.629 .8609196 1.094757

sp75\_810\_ss\_1lag | 1.25018 .1411059 1.98 0.048 1.002072 1.559719

sp75\_811\_ss\_1lag | 1.041535 .0966814 0.44 0.661 .868281 1.249359

sp75\_812\_ss\_1lag | 1.096081 .180142 0.56 0.577 .7942307 1.51265

sp75\_814\_ss\_1lag | .8385348 .1020096 -1.45 0.148 .6606487 1.064318

sp75\_815\_ss\_1lag | 1.750914 .5589513 1.75 0.079 .9365531 3.273387

sp75\_816\_ss\_1lag | 1.165246 .0885539 2.01 0.044 1.003991 1.352401

sp75\_818\_ss\_1lag | 1.306839 .1861047 1.88 0.060 .9885623 1.727589

sp75\_819\_ss\_1lag | 1.236331 .4854135 0.54 0.589 .572707 2.66893

sp75\_820\_ss\_1lag | 1.03401 .1286629 0.27 0.788 .8102313 1.319595

sp75\_821\_ss\_1lag | 1.303071 .5310692 0.65 0.516 .5862184 2.896523

sp75\_825\_ss\_1lag | 1.11589 .2733571 0.45 0.654 .6904061 1.803592

sp75\_827\_ss\_1lag | 1.041576 .4286696 0.10 0.921 .4649132 2.333514

sp75\_831\_ss\_1lag | 1.00095 .1308722 0.01 0.994 .7746746 1.293318

sp75\_900\_2\_ss\_1lag | .8927633 .2133757 -0.47 0.635 .5588486 1.426194

sp75\_900\_3\_ss\_1lag | 1.028247 .1038474 0.28 0.783 .8435883 1.253326

sp75\_900\_4\_ss\_1lag | 1.120235 .1852284 0.69 0.492 .8101489 1.549007

sp75\_900\_ss\_1lag | .9500934 .0297713 -1.63 0.102 .8934984 1.010273

sp75\_901\_ss\_1lag | 1.068776 .0897719 0.79 0.428 .9065465 1.260037

sp75\_902\_1\_ss\_1lag | 1.185829 .2513435 0.80 0.421 .7827173 1.79655

sp75\_902\_2\_ss\_1lag | 1.177533 .0783231 2.46 0.014 1.033608 1.341499

sp75\_902\_4\_ss\_1lag | 1.022539 .0667607 0.34 0.733 .8997162 1.162128

sp75\_902\_ss\_1lag | 1.048509 .031722 1.57 0.117 .9881423 1.112563

sp75\_903\_ss\_1lag | 1.053076 .0547953 0.99 0.320 .9509741 1.16614

sp75\_904\_ss\_1lag | 1.005819 .0121699 0.48 0.632 .9822468 1.029956

sp75\_905\_ss\_1lag | 1.556352 .7453765 0.92 0.356 .6087598 3.978963

sp75\_907\_ss\_1lag | .8821388 .1734613 -0.64 0.524 .6000107 1.296925

sp77\_103\_ss\_1lag | 1.002762 .1012946 0.03 0.978 .8226467 1.222314

sp77\_1103\_ss\_1lag | .8988026 .0690884 -1.39 0.165 .7730986 1.044946

sp77\_1104\_ss\_1lag | 1.040603 .0126625 3.27 0.001 1.016079 1.06572

sp77\_1106\_ss\_1lag | 3.70e-07 3.72e-07 -14.69 0.000 5.12e-08 2.66e-06

sp77\_1111\_ss\_1lag | .4662908 .0762447 -4.67 0.000 .3384342 .6424503

sp77\_1112\_ss\_1lag | 1.020988 .0726207 0.29 0.770 .8881295 1.173721

sp77\_1403\_ss\_1lag | .6830081 .2351049 -1.11 0.268 .3478768 1.340992

sp77\_1433\_ss\_1lag | .5860415 .1647174 -1.90 0.057 .3378181 1.016655

sp77\_1434\_ss\_1lag | .8844991 .1283815 -0.85 0.398 .6655013 1.175563

sp77\_1437\_ss\_1lag | .7833581 .1140974 -1.68 0.094 .5888185 1.042172

sp77\_1438\_ss\_1lag | .4765499 .4646421 -0.76 0.447 .0704979 3.22137

sp77\_1605\_ss\_1lag | 1.009761 .0165905 0.59 0.554 .977762 1.042807

sp77\_1606\_ss\_1lag | 1.024201 .0229469 1.07 0.286 .9801992 1.070179

sp77\_1710\_ss\_1lag | .9577547 .0248021 -1.67 0.096 .9103565 1.007621

sp77\_1802\_ss\_1lag | .8663462 .3402117 -0.37 0.715 .401261 1.870492

sp77\_1906\_ss\_1lag | .6043542 .2663714 -1.14 0.253 .2547541 1.433712

sp77\_1915\_ss\_1lag | 1.285351 .2693251 1.20 0.231 .852444 1.938106

sp77\_1916\_ss\_1lag | 1.266781 .1032748 2.90 0.004 1.079709 1.486264

sp77\_200\_ss\_1lag | .9777305 .0150009 -1.47 0.142 .948767 1.007578

sp77\_202\_ss\_1lag | .9375726 .0196911 -3.07 0.002 .8997622 .9769718

sp77\_203\_ss\_1lag | .8501845 .1231017 -1.12 0.262 .6401242 1.129177

sp77\_204\_ss\_1lag | .9851766 .0253175 -0.58 0.561 .9367842 1.036069

sp77\_205\_ss\_1lag | 1.005867 .0080353 0.73 0.464 .9902412 1.02174

sp77\_206\_ss\_1lag | 1.047645 .0699027 0.70 0.485 .919219 1.194014

sp77\_207\_ss\_1lag | 1.136594 .0624213 2.33 0.020 1.020605 1.265764

sp77\_208\_ss\_1lag | .9993104 .0317772 -0.02 0.983 .9389295 1.063574

sp77\_210\_ss\_1lag | .9891049 .0854005 -0.13 0.899 .8351194 1.171483

sp77\_216\_ss\_1lag | 1.336108 .2697822 1.44 0.151 .8994355 1.984784

sp77\_315\_ss\_1lag | .939558 .4350842 -0.13 0.893 .3791009 2.328586

sp77\_400\_ss\_1lag | 1.003053 .0081236 0.38 0.707 .9872568 1.019102

sp77\_401\_ss\_1lag | .9822074 .0940367 -0.19 0.851 .8141587 1.184943

sp77\_402\_ss\_1lag | 1.008491 .0616466 0.14 0.890 .8946235 1.136852

sp77\_403\_1\_ss\_1lag | 1.151857 .1295511 1.26 0.209 .9239801 1.435934

sp77\_403\_ss\_1lag | 1.661505 .4737149 1.78 0.075 .9501974 2.905289

sp77\_404\_ss\_1lag | .979742 .0098239 -2.04 0.041 .9606755 .9991869

sp77\_405\_ss\_1lag | 1.04111 .0797153 0.53 0.599 .8960295 1.209682

sp77\_408\_ss\_1lag | .931457 .1702479 -0.39 0.698 .6510041 1.332729

sp77\_409\_ss\_1lag | 1.572997 .7552997 0.94 0.345 .6137762 4.031308

sp77\_410\_ss\_1lag | 1.003094 .0182611 0.17 0.865 .9679338 1.039531

sp77\_411\_ss\_1lag | .5322204 .0501586 -6.69 0.000 .4424568 .6401949

sp77\_412\_ss\_1lag | 1.189776 .2216629 0.93 0.351 .8258113 1.714152

sp77\_413\_ss\_1lag | .7393667 .0794129 -2.81 0.005 .5990115 .9126088

sp77\_500\_ss\_1lag | .9297389 .1272465 -0.53 0.595 .7109898 1.21579

sp77\_501\_ss\_1lag | .9545683 .0838525 -0.53 0.597 .8035901 1.133912

sp77\_502\_1\_ss\_1lag | 2.403871 .7806281 2.70 0.007 1.272019 4.542852

sp77\_502\_2\_ss\_1lag | .897614 .1013862 -0.96 0.339 .7193591 1.12004

sp77\_502\_ss\_1lag | .9932387 .0152302 -0.44 0.658 .9638321 1.023542

sp77\_503\_1\_ss\_1lag | .6339676 .2122131 -1.36 0.173 .3289557 1.22179

sp77\_503\_ss\_1lag | 1.068075 .1767765 0.40 0.691 .7721826 1.477351

sp77\_504\_ss\_1lag | .9579546 .0535489 -0.77 0.442 .8585457 1.068874

sp77\_505\_ss\_1lag | .9428729 .0444924 -1.25 0.213 .8595806 1.034236

sp77\_506\_1\_ss\_1lag | 1.294757 .3313156 1.01 0.313 .7841051 2.137974

sp77\_506\_ss\_1lag | 1.00763 .1131473 0.07 0.946 .808573 1.255691

sp77\_507\_ss\_1lag | 1.302443 .1550456 2.22 0.026 1.031407 1.644704

sp77\_508\_1\_ss\_1lag | .5281512 .4110464 -0.82 0.412 .1148921 2.427875

sp77\_508\_ss\_1lag | 1.337012 .1675634 2.32 0.020 1.04582 1.709282

sp77\_509\_ss\_1lag | .8078209 .0727632 -2.37 0.018 .677087 .9637973

sp77\_510\_ss\_1lag | .769669 .1207493 -1.67 0.095 .565931 1.046754

sp77\_511\_ss\_1lag | .9279473 .3638082 -0.19 0.849 .4303322 2.00098

sp77\_512\_ss\_1lag | .9853752 .0372363 -0.39 0.697 .9150306 1.061128

sp77\_513\_ss\_1lag | .9834384 .0601387 -0.27 0.785 .8723585 1.108662

sp77\_514\_ss\_1lag | 3.210507 1.190197 3.15 0.002 1.552447 6.639425

sp77\_515\_ss\_1lag | 2.041264 .8715105 1.67 0.095 .8840598 4.713209

sp77\_516\_ss\_1lag | .9602041 .0340558 -1.14 0.252 .8957231 1.029327

sp77\_600\_ss\_1lag | .9962288 .1540048 -0.02 0.981 .7358236 1.34879

sp77\_601\_ss\_1lag | 1.213256 .2158376 1.09 0.277 .8560996 1.719416

sp77\_602\_ss\_1lag | 1.156131 .239183 0.70 0.483 .7707413 1.734225

sp77\_603\_ss\_1lag | 2.690601 .8258259 3.22 0.001 1.474314 4.910305

sp77\_604\_ss\_1lag | .8433898 .0909642 -1.58 0.114 .6826869 1.041922

sp77\_605\_ss\_1lag | .6637008 .5394559 -0.50 0.614 .1349323 3.264592

sp77\_606\_ss\_1lag | 1 (omitted)

sp77\_700\_1\_ss\_1lag | 1.303924 .4107307 0.84 0.400 .7032781 2.41756

sp77\_700\_ss\_1lag | .8478305 .222432 -0.63 0.529 .5069821 1.417834

sp77\_701\_1\_ss\_1lag | 1.275772 .4134779 0.75 0.452 .6759247 2.407951

sp77\_701\_2\_ss\_1lag | .8579061 .1894274 -0.69 0.488 .5565353 1.322473

sp77\_701\_3\_ss\_1lag | 1.359513 .2284688 1.83 0.068 .9779969 1.889859

sp77\_701\_4\_ss\_1lag | 1.035997 .2108239 0.17 0.862 .6952484 1.543749

sp77\_701\_ss\_1lag | .9651699 .0452783 -0.76 0.450 .8803837 1.058121

sp77\_704\_1\_ss\_1lag | 1.189262 .2197849 0.94 0.348 .8278825 1.708386

sp77\_704\_8\_ss\_1lag | 1.24892 .6161474 0.45 0.652 .4748969 3.284505

sp77\_704\_9\_ss\_1lag | 2.185053 .5249642 3.25 0.001 1.364454 3.499171

sp77\_704\_ss\_1lag | 1.18933 .3237901 0.64 0.524 .6975355 2.027862

sp77\_705\_ss\_1lag | .8336209 .1612213 -0.94 0.347 .5706203 1.217839

sp77\_800\_1\_ss\_1lag | .9774874 .4402993 -0.05 0.960 .4042928 2.363341

sp77\_800\_2\_ss\_1lag | 2.589271 .6963715 3.54 0.000 1.52845 4.386357

sp77\_800\_ss\_1lag | 1.420957 .3973612 1.26 0.209 .8213872 2.458181

sp77\_801\_1\_ss\_1lag | 6.05e-06 6.07e-06 -11.97 0.000 8.46e-07 .0000433

sp77\_802\_ss\_1lag | 1.027849 .3179838 0.09 0.929 .5605246 1.884794

sp77\_803\_ss\_1lag | 2.096996 1.342028 1.16 0.247 .5982032 7.350999

sp77\_804\_ss\_1lag | 4.48e-07 4.50e-07 -14.57 0.000 6.27e-08 3.20e-06

sp77\_805\_ss\_1lag | 1.178578 .3774684 0.51 0.608 .6291296 2.207885

sp77\_807\_1\_ss\_1lag | .6964418 .2152613 -1.17 0.242 .3800049 1.276381

sp77\_807\_2\_ss\_1lag | 1.101379 .2863979 0.37 0.710 .6615979 1.833495

sp77\_807\_3\_ss\_1lag | 1.418709 .088829 5.59 0.000 1.254866 1.603944

sp77\_807\_ss\_1lag | .9111514 .1847059 -0.46 0.646 .6124033 1.355638

sp77\_808\_ss\_1lag | 1.837139 .2819884 3.96 0.000 1.359841 2.481965

sp77\_809\_ss\_1lag | .7912291 .1026366 -1.81 0.071 .6136011 1.020278

sp77\_810\_ss\_1lag | .960712 .2526746 -0.15 0.879 .5737474 1.608665

sp77\_900\_1\_ss\_1lag | 1.795693 .349682 3.01 0.003 1.225954 2.630206

sp77\_900\_2\_ss\_1lag | 8.48e-07 8.59e-07 -13.79 0.000 1.16e-07 6.18e-06

sp77\_900\_ss\_1lag | .7819463 .2534782 -0.76 0.448 .4142368 1.476064

sp77\_901\_1\_ss\_1lag | 1 (omitted)

sp77\_901\_ss\_1lag | .8534454 .1311221 -1.03 0.302 .6315363 1.153329

sp77\_902\_3\_ss\_1lag | 1.40e-06 1.20e-06 -15.64 0.000 2.58e-07 7.57e-06

sp77\_902\_ss\_1lag | 1.140257 .1348447 1.11 0.267 .9043595 1.437687

sp77\_903\_ss\_1lag | 1.050986 .1783113 0.29 0.769 .7536701 1.46559

sp77\_904\_ss\_1lag | 1.010231 .0494002 0.21 0.835 .9179031 1.111845

mine\_time | .9943857 .0064241 -0.87 0.383 .981874 1.007057

onsite\_insp\_hours | .9998855 .0000393 -2.91 0.004 .9998084 .9999626

|

state |

1 | 1.086894 .0886585 1.02 0.307 .926305 1.275323

2 | 1.839288 .1542443 7.27 0.000 1.560513 2.167865

3 | .6875028 .115249 -2.24 0.025 .4949758 .9549156

4 | 1.084339 .0732946 1.20 0.231 .9497935 1.237944

5 | .8985717 .1398065 -0.69 0.492 .6623942 1.218959

6 | .9483404 .0528784 -0.95 0.341 .8501631 1.057855

7 | 1.096361 .249105 0.40 0.686 .7023463 1.711416

8 | .8811107 .065201 -1.71 0.087 .762154 1.018634

9 | .7530213 .0498558 -4.28 0.000 .6613803 .8573602

10 | 1.117189 .1101352 1.12 0.261 .9209015 1.355315

11 | .8688787 .2512502 -0.49 0.627 .4929701 1.531432

12 | .9525359 .0794297 -0.58 0.560 .8089127 1.12166

13 | 1.265367 .1830098 1.63 0.104 .953032 1.680063

14 | .5965396 .0754614 -4.08 0.000 .4655471 .76439

15 | .6923939 .0464919 -5.47 0.000 .6070128 .7897844

17 | 1.073071 .1014665 0.75 0.456 .8915413 1.291564

|

time |

2000 | 1.081304 .0707722 1.19 0.232 .9511215 1.229305

2002 | .9893953 .0570279 -0.18 0.853 .883705 1.107726

2003 | .8947245 .0606751 -1.64 0.101 .7833678 1.021911

2004 | .9190995 .065354 -1.19 0.235 .7995333 1.056546

2005 | .7904235 .058072 -3.20 0.001 .6844198 .9128453

2006 | .7625381 .0575776 -3.59 0.000 .6576414 .8841663

2007 | .6970624 .0569136 -4.42 0.000 .5939815 .8180322

2008 | .655167 .0517448 -5.35 0.000 .5612088 .7648557

2009 | .560536 .0482372 -6.73 0.000 .473536 .66352

2010 | .5403654 .0449797 -7.39 0.000 .4590226 .6361228

2011 | .5425361 .0475051 -6.98 0.000 .4569792 .6441111

2012 | .5717435 .0514143 -6.22 0.000 .4793541 .6819397

2013 | .5277168 .0521234 -6.47 0.000 .4348371 .6404354

2014 | .5229415 .0527925 -6.42 0.000 .4290637 .6373595

2015 | .5392557 .0590827 -5.64 0.000 .435045 .6684291

|

\_cons | .0000167 1.09e-06 -168.37 0.000 .0000147 .0000189

ln(hours) | 1 (exposure)

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

**. estat gof**

Deviance goodness-of-fit = 7701.535

Prob > chi2(5951) = 0.0000

Pearson goodness-of-fit = 8459.344

Prob > chi2(5951) = 0.0000

**. glm MR `subpart\_sigsub\_lag\_1\_vars' `covariates' ib(freq).state ib(freq).time, family(nbinomial) link(log) vce(cl mineid) exposure(hours) iter(50) eform**

note: sp77\_606\_ss\_1lag omitted because of collinearity

note: sp77\_901\_1\_ss\_1lag omitted because of collinearity

Iteration 0: log pseudolikelihood = -9162.6041

Iteration 1: log pseudolikelihood = -9007.3225

Iteration 2: log pseudolikelihood = -9005.2624

Iteration 3: log pseudolikelihood = -9004.9879

Iteration 4: log pseudolikelihood = -9004.9446

Iteration 5: log pseudolikelihood = -9004.94

Iteration 6: log pseudolikelihood = -9004.9391

Iteration 7: log pseudolikelihood = -9004.9389

Iteration 8: log pseudolikelihood = -9004.9388

Iteration 9: log pseudolikelihood = -9004.9388

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 5,953

Scale parameter = 1

Deviance = 3696.115255 (1/df) Deviance = .6208828

Pearson = 3936.273266 (1/df) Pearson = .6612251

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

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

AIC = 2.976152

Log pseudolikelihood = -9004.938802 BIC = -48337.97

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

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| Robust

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

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

sp47\_41\_ss\_1lag | .5486579 .1619183 -2.03 0.042 .3076788 .9783757

sp47\_44\_ss\_1lag | 1.107005 .200095 0.56 0.574 .7767691 1.577637

sp48\_11\_ss\_1lag | .969344 .085623 -0.35 0.724 .8152495 1.152565

sp48\_25\_ss\_1lag | .9490899 .1012756 -0.49 0.624 .7699762 1.16987

sp48\_26\_ss\_1lag | 1.127771 .0630049 2.15 0.031 1.010804 1.258273

sp48\_27\_ss\_1lag | 1.059831 .0965946 0.64 0.524 .8864548 1.267116

sp48\_28\_ss\_1lag | .8102304 .1177061 -1.45 0.147 .6094673 1.077126

sp48\_4\_ss\_1lag | 2.261095 .3157286 5.84 0.000 1.719733 2.972874

sp48\_5\_ss\_1lag | .9556397 .1133618 -0.38 0.702 .7573929 1.205777

sp48\_6\_ss\_1lag | .9077947 .1159481 -0.76 0.449 .7067533 1.166024

sp48\_7\_ss\_1lag | 1.188613 .0819813 2.51 0.012 1.03832 1.360661

sp48\_8\_ss\_1lag | 1.228694 .2236464 1.13 0.258 .8600195 1.755412

sp71\_701\_ss\_1lag | 2.491973 .6511921 3.49 0.000 1.493176 4.158875

sp72\_503\_ss\_1lag | .9966431 .2262721 -0.01 0.988 .6386865 1.555219

sp72\_610\_ss\_1lag | .5975794 .2067954 -1.49 0.137 .3032725 1.177493

sp72\_620\_ss\_1lag | 1.237688 .3120509 0.85 0.398 .7550974 2.028708

sp72\_630\_ss\_1lag | 1.020953 .0121718 1.74 0.082 .9973734 1.04509

sp75\_100\_ss\_1lag | 1.296749 .3286299 1.03 0.305 .7891132 2.130946

sp75\_1001\_1\_ss\_1lag | 1.600503 1.67956 0.45 0.654 .2046491 12.51709

sp75\_1001\_ss\_1lag | 1.776509 1.419903 0.72 0.472 .3708779 8.509495

sp75\_1003\_1\_ss\_1lag | .6423749 .1610633 -1.77 0.078 .392976 1.050053

sp75\_1100\_2\_ss\_1lag | 1.020901 .0177181 1.19 0.233 .9867578 1.056225

sp75\_1101\_20\_ss\_1lag | .702011 .0956041 -2.60 0.009 .537554 .9167812

sp75\_1102\_ss\_1lag | .9062974 .0598712 -1.49 0.136 .7962313 1.031578

sp75\_1103\_4\_ss\_1lag | 1.037061 .0371078 1.02 0.309 .966823 1.112402

sp75\_1104\_ss\_1lag | .9635481 .1594885 -0.22 0.822 .6965956 1.332803

sp75\_1106\_2\_ss\_1lag | .9400139 .0650878 -0.89 0.372 .8207218 1.076645

sp75\_1106\_3\_ss\_1lag | 1.066498 .033996 2.02 0.043 1.001906 1.135254

sp75\_1106\_4\_ss\_1lag | .9829155 .1765855 -0.10 0.924 .691184 1.39778

sp75\_1106\_5\_ss\_1lag | .911422 .0834525 -1.01 0.311 .7616948 1.090581

sp75\_1106\_6\_ss\_1lag | .4474696 .2093999 -1.72 0.086 .1788263 1.119684

sp75\_1106\_ss\_1lag | .8967629 .1205611 -0.81 0.418 .6890359 1.167114

sp75\_1107\_14\_ss\_1lag | 1.547517 .4705132 1.44 0.151 .8527718 2.808265

sp75\_1400\_1\_ss\_1lag | .8888462 .196852 -0.53 0.595 .5758531 1.37196

sp75\_1400\_2\_ss\_1lag | .3532829 .235606 -1.56 0.119 .0955988 1.305548

sp75\_1400\_3\_ss\_1lag | .9312504 .1240766 -0.53 0.593 .7172248 1.209143

sp75\_1400\_4\_ss\_1lag | .6470395 .1418733 -1.99 0.047 .4210094 .9944198

sp75\_1400\_ss\_1lag | 1.122715 .0789923 1.65 0.100 .978094 1.28872

sp75\_1401\_ss\_1lag | 1.212545 .3012201 0.78 0.438 .7451483 1.973118

sp75\_1403\_10\_ss\_1lag | 1.003147 .0217869 0.14 0.885 .961342 1.046771

sp75\_1403\_11\_ss\_1lag | 3.14855 1.487298 2.43 0.015 1.247452 7.946895

sp75\_1403\_3\_ss\_1lag | .9126982 .563534 -0.15 0.882 .2721219 3.061194

sp75\_1403\_4\_ss\_1lag | .9850917 .2878455 -0.05 0.959 .5555896 1.746623

sp75\_1403\_5\_ss\_1lag | .9722347 .0140651 -1.95 0.052 .9450547 1.000196

sp75\_1403\_6\_ss\_1lag | 1.00037 .0136323 0.03 0.978 .9740044 1.027448

sp75\_1403\_7\_ss\_1lag | .9996214 .0575106 -0.01 0.995 .8930257 1.118941

sp75\_1403\_8\_ss\_1lag | .9679612 .0326706 -0.96 0.335 .9060001 1.03416

sp75\_1403\_9\_ss\_1lag | .8656813 .1220623 -1.02 0.306 .6566553 1.141244

sp75\_1404\_1\_ss\_1lag | .5137634 .1492968 -2.29 0.022 .2906757 .9080664

sp75\_1404\_ss\_1lag | .7440415 .2202151 -1.00 0.318 .4165486 1.329011

sp75\_1405\_1\_ss\_1lag | 2.541943 1.615791 1.47 0.142 .7313041 8.83555

sp75\_1405\_ss\_1lag | 1.001225 .0208448 0.06 0.953 .9611922 1.042925

sp75\_1431\_ss\_1lag | 1.310108 .4800365 0.74 0.461 .6388791 2.686556

sp75\_1432\_ss\_1lag | 1.08e-06 8.13e-07 -18.30 0.000 2.49e-07 4.71e-06

sp75\_1433\_ss\_1lag | 1.20578 .2683045 0.84 0.400 .7795837 1.864977

sp75\_1434\_ss\_1lag | 1.050361 .1121583 0.46 0.645 .8520139 1.294883

sp75\_1435\_ss\_1lag | .8470195 .4194407 -0.34 0.737 .3209089 2.235656

sp75\_1437\_ss\_1lag | 1.307083 .3708103 0.94 0.345 .7495895 2.279204

sp75\_150\_ss\_1lag | 1.222721 .2604205 0.94 0.345 .8054432 1.85618

sp75\_151\_ss\_1lag | .8353311 .1569559 -0.96 0.338 .5779906 1.207248

sp75\_153\_ss\_1lag | 2.826453 3.04036 0.97 0.334 .3432583 23.27354

sp75\_155\_ss\_1lag | .9090521 .4942706 -0.18 0.861 .3131646 2.63879

sp75\_156\_ss\_1lag | 1.697841 .56048 1.60 0.109 .8890046 3.242575

sp75\_1600\_2\_ss\_1lag | .774133 .1128292 -1.76 0.079 .5817731 1.030096

sp75\_1712\_10\_ss\_1lag | .8814496 .1273621 -0.87 0.382 .6640579 1.170009

sp75\_1712\_6\_ss\_1lag | 1.363695 .5561057 0.76 0.447 .6132013 3.032715

sp75\_1720\_ss\_1lag | 1.020486 .0415734 0.50 0.619 .9421718 1.10531

sp75\_1721\_ss\_1lag | 9.27e-07 6.95e-07 -18.53 0.000 2.13e-07 4.03e-06

sp75\_1725\_ss\_1lag | 1.002669 .0054074 0.49 0.621 .9921266 1.013324

sp75\_1726\_ss\_1lag | 1.243495 .1353569 2.00 0.045 1.004591 1.539214

sp75\_1727\_ss\_1lag | 1.317985 .2693075 1.35 0.177 .8830434 1.967156

sp75\_1728\_ss\_1lag | 1.622199 .296974 2.64 0.008 1.13312 2.322376

sp75\_1729\_ss\_1lag | 1.156505 .1926946 0.87 0.383 .8343 1.603146

sp75\_1730\_ss\_1lag | .7667674 .1428466 -1.43 0.154 .532215 1.104689

sp75\_1731\_ss\_1lag | .9979115 .0052659 -0.40 0.692 .9876437 1.008286

sp75\_1903\_ss\_1lag | .9431303 .1342691 -0.41 0.681 .7134936 1.246675

sp75\_1909\_ss\_1lag | 1.015549 .0177078 0.88 0.376 .9814283 1.050855

sp75\_1910\_ss\_1lag | .9870807 .0294985 -0.44 0.663 .9309254 1.046623

sp75\_1911\_ss\_1lag | .9657189 .0406598 -0.83 0.407 .8892267 1.048791

sp75\_1912\_ss\_1lag | 1.505568 .54123 1.14 0.255 .7442273 3.045756

sp75\_1913\_ss\_1lag | 1.165036 .0675722 2.63 0.008 1.039847 1.305296

sp75\_1914\_ss\_1lag | 1.021524 .01532 1.42 0.156 .9919345 1.051996

sp75\_1915\_ss\_1lag | 1.167599 .3756904 0.48 0.630 .6214533 2.193709

sp75\_202\_ss\_1lag | 1.003394 .0031467 1.08 0.280 .9972455 1.00958

sp75\_208\_ss\_1lag | 1.00986 .0210114 0.47 0.637 .9695066 1.051893

sp75\_211\_ss\_1lag | .9948448 .0194046 -0.26 0.791 .9575302 1.033613

sp75\_212\_ss\_1lag | .9461716 .0459557 -1.14 0.255 .8602545 1.04067

sp75\_214\_ss\_1lag | 1.189043 .1695096 1.21 0.225 .8991877 1.572333

sp75\_312\_ss\_1lag | .9721079 .1557253 -0.18 0.860 .7101623 1.330673

sp75\_320\_ss\_1lag | 1.037798 .0586303 0.66 0.511 .929018 1.159314

sp75\_324\_ss\_1lag | 1.016927 .0720431 0.24 0.813 .88509 1.168402

sp75\_337\_ss\_1lag | 1.046214 .0510441 0.93 0.354 .9508042 1.151198

sp75\_340\_ss\_1lag | 1.025985 .02016 1.31 0.192 .9872237 1.066269

sp75\_342\_ss\_1lag | .9996608 .011719 -0.03 0.977 .9769538 1.022896

sp75\_344\_ss\_1lag | .9166098 .1088239 -0.73 0.463 .7263169 1.156759

sp75\_352\_ss\_1lag | 1.027306 .0790674 0.35 0.726 .8834596 1.194575

sp75\_382\_ss\_1lag | 1.205683 .132154 1.71 0.088 .9725989 1.494627

sp75\_503\_ss\_1lag | .9988032 .0064974 -0.18 0.854 .9861494 1.011619

sp75\_504\_ss\_1lag | .6543886 .2140187 -1.30 0.195 .3447062 1.242288

sp75\_505\_ss\_1lag | .9944637 .2856098 -0.02 0.985 .566401 1.746039

sp75\_506\_1\_ss\_1lag | 1.280262 .3884174 0.81 0.415 .7064048 2.320299

sp75\_506\_ss\_1lag | 1.038377 .2386275 0.16 0.870 .6618234 1.629177

sp75\_507\_ss\_1lag | 1.073282 .0911952 0.83 0.405 .9086325 1.267766

sp75\_511\_1\_ss\_1lag | .2463316 .0918452 -3.76 0.000 .1186173 .5115549

sp75\_511\_ss\_1lag | 1.104984 .0644663 1.71 0.087 .9855884 1.238843

sp75\_512\_1\_ss\_1lag | 1.448677 .5298676 1.01 0.311 .7073534 2.966926

sp75\_512\_2\_ss\_1lag | 1.00728 .0566418 0.13 0.897 .9021633 1.124645

sp75\_512\_ss\_1lag | 1.018806 .008332 2.28 0.023 1.002606 1.035268

sp75\_513\_1\_ss\_1lag | 1.422903 .3747823 1.34 0.181 .8491313 2.38438

sp75\_513\_ss\_1lag | .7086353 .1073546 -2.27 0.023 .5265869 .9536203

sp75\_514\_ss\_1lag | 1.021141 .0308384 0.69 0.488 .9624528 1.083408

sp75\_515\_ss\_1lag | .9213579 .0266397 -2.83 0.005 .8705969 .9750787

sp75\_516\_1\_ss\_1lag | .5453082 .1534357 -2.16 0.031 .3141491 .9465602

sp75\_516\_2\_ss\_1lag | .9210027 .3130057 -0.24 0.809 .4731265 1.792852

sp75\_516\_ss\_1lag | 1.071761 .0634495 1.17 0.242 .9543463 1.203622

sp75\_517\_1\_ss\_1lag | .8579548 .2215302 -0.59 0.553 .5172231 1.423151

sp75\_517\_ss\_1lag | .9988338 .0047014 -0.25 0.804 .9896616 1.008091

sp75\_518\_1\_ss\_1lag | .8836947 .0641903 -1.70 0.089 .7664294 1.018902

sp75\_518\_ss\_1lag | 1.060236 .0276202 2.25 0.025 1.007461 1.115777

sp75\_519\_ss\_1lag | .5818239 .5692969 -0.55 0.580 .0854903 3.959736

sp75\_520\_ss\_1lag | .9604622 .0438763 -0.88 0.377 .8782037 1.050426

sp75\_523\_1\_ss\_1lag | .9554641 .033173 -1.31 0.189 .892609 1.022745

sp75\_523\_2\_ss\_1lag | 1.047644 .0343583 1.42 0.156 .9824216 1.117196

sp75\_523\_ss\_1lag | .8941012 .031423 -3.19 0.001 .8345867 .9578598

sp75\_600\_1\_ss\_1lag | .7396215 .1192349 -1.87 0.061 .5392456 1.014454

sp75\_600\_ss\_1lag | .6407914 .0971754 -2.93 0.003 .4760283 .8625823

sp75\_601\_1\_ss\_1lag | .9904857 .0296352 -0.32 0.749 .934072 1.050307

sp75\_601\_2\_ss\_1lag | .9422392 .3068927 -0.18 0.855 .4976453 1.784031

sp75\_601\_3\_ss\_1lag | 1.315566 .6537594 0.55 0.581 .4967242 3.484256

sp75\_601\_ss\_1lag | 1.045466 .0330647 1.41 0.160 .9826282 1.112323

sp75\_602\_ss\_1lag | 1.003176 .0777037 0.04 0.967 .8618762 1.16764

sp75\_603\_ss\_1lag | 1.001531 .0872534 0.02 0.986 .8443211 1.188013

sp75\_604\_ss\_1lag | 1.02306 .007473 3.12 0.002 1.008517 1.037812

sp75\_605\_ss\_1lag | 1.038279 .0385537 1.01 0.312 .965399 1.11666

sp75\_606\_ss\_1lag | .9841206 .019023 -0.83 0.408 .9475337 1.02212

sp75\_607\_ss\_1lag | 1.031694 .0672311 0.48 0.632 .9079912 1.172249

sp75\_700\_1\_ss\_1lag | .5016421 .1066196 -3.25 0.001 .3307338 .7608679

sp75\_700\_ss\_1lag | .857102 .0708309 -1.87 0.062 .7289356 1.007803

sp75\_701\_1\_ss\_1lag | .9188883 .0791697 -0.98 0.326 .7761128 1.087929

sp75\_701\_2\_ss\_1lag | 1.212775 .1457987 1.60 0.109 .9581854 1.535009

sp75\_701\_3\_ss\_1lag | 1.107444 .1153149 0.98 0.327 .9030019 1.358173

sp75\_701\_4\_ss\_1lag | 3.143782 1.351973 2.66 0.008 1.353306 7.303126

sp75\_701\_5\_ss\_1lag | .7976712 .074247 -2.43 0.015 .6646521 .9573119

sp75\_701\_ss\_1lag | 1.047284 .0228661 2.12 0.034 1.003412 1.093073

sp75\_703\_2\_ss\_1lag | 1.062907 .260614 0.25 0.804 .657339 1.718705

sp75\_703\_3\_ss\_1lag | 1.13886 .1891757 0.78 0.434 .8223897 1.577115

sp75\_703\_ss\_1lag | 1.00233 .0617571 0.04 0.970 .888311 1.130983

sp75\_704\_ss\_1lag | .9737723 .7001302 -0.04 0.971 .2379327 3.985298

sp75\_705\_1\_ss\_1lag | .8954659 .1009222 -0.98 0.327 .7179853 1.116818

sp75\_705\_8\_ss\_1lag | 9.77e-07 9.80e-07 -13.79 0.000 1.37e-07 6.98e-06

sp75\_705\_ss\_1lag | 1.268081 .2078184 1.45 0.147 .919705 1.748419

sp75\_706\_ss\_1lag | .8950872 .1260777 -0.79 0.431 .6791555 1.179673

sp75\_800\_2\_ss\_1lag | 4.54e-07 4.55e-07 -14.56 0.000 6.36e-08 3.24e-06

sp75\_800\_3\_ss\_1lag | .7044305 .2648747 -0.93 0.351 .3371132 1.471976

sp75\_800\_4\_ss\_1lag | 3.883977 1.299937 4.05 0.000 2.015515 7.484576

sp75\_800\_ss\_1lag | .9585739 .0857854 -0.47 0.636 .8043577 1.142357

sp75\_801\_ss\_1lag | .6414088 .172996 -1.65 0.100 .3780552 1.088215

sp75\_802\_ss\_1lag | .7222926 .2275879 -1.03 0.302 .3894998 1.339427

sp75\_803\_2\_ss\_1lag | 1.484697 .4295675 1.37 0.172 .8420922 2.617677

sp75\_803\_ss\_1lag | .9813256 .113199 -0.16 0.870 .7827523 1.230274

sp75\_804\_ss\_1lag | .9817034 .066592 -0.27 0.785 .8594896 1.121295

sp75\_805\_ss\_1lag | .7130754 .1160236 -2.08 0.038 .5183672 .9809196

sp75\_806\_ss\_1lag | .8395617 .262444 -0.56 0.576 .4549567 1.549299

sp75\_807\_ss\_1lag | 1.035289 .0274724 1.31 0.191 .9828203 1.090559

sp75\_808\_ss\_1lag | 1.024334 .1686728 0.15 0.884 .7417848 1.414508

sp75\_809\_ss\_1lag | .9705766 .0626909 -0.46 0.644 .8551643 1.101565

sp75\_810\_ss\_1lag | 1.114074 .1121304 1.07 0.283 .914622 1.357021

sp75\_811\_ss\_1lag | 1.012453 .1311315 0.10 0.924 .785468 1.305032

sp75\_812\_ss\_1lag | .8374204 .1962418 -0.76 0.449 .5290202 1.325607

sp75\_814\_ss\_1lag | .8030834 .1166632 -1.51 0.131 .6040979 1.067613

sp75\_815\_ss\_1lag | 1.463938 .6791162 0.82 0.411 .5897294 3.634062

sp75\_816\_ss\_1lag | 1.09283 .1083671 0.90 0.371 .8998002 1.327271

sp75\_818\_ss\_1lag | 1.124063 .2326694 0.57 0.572 .7492056 1.686478

sp75\_819\_ss\_1lag | 1.50007 .5902251 1.03 0.303 .6937352 3.243617

sp75\_820\_ss\_1lag | 1.010453 .1498762 0.07 0.944 .7555466 1.351361

sp75\_821\_ss\_1lag | .622895 .1644421 -1.79 0.073 .3712792 1.045031

sp75\_825\_ss\_1lag | 1.308317 .6623661 0.53 0.596 .4850345 3.529016

sp75\_827\_ss\_1lag | .7860284 .4505917 -0.42 0.674 .2555559 2.417634

sp75\_831\_ss\_1lag | .9268303 .1513375 -0.47 0.642 .6729949 1.276406

sp75\_900\_2\_ss\_1lag | .9290165 .3369465 -0.20 0.839 .4563518 1.891242

sp75\_900\_3\_ss\_1lag | .8418859 .1274616 -1.14 0.256 .6257218 1.132727

sp75\_900\_4\_ss\_1lag | 1.158219 .1978408 0.86 0.390 .8286921 1.618783

sp75\_900\_ss\_1lag | .9682139 .0286748 -1.09 0.275 .9136123 1.026079

sp75\_901\_ss\_1lag | 1.117616 .151859 0.82 0.413 .8563142 1.458652

sp75\_902\_1\_ss\_1lag | .9815935 .2164167 -0.08 0.933 .6371814 1.512169

sp75\_902\_2\_ss\_1lag | 1.193525 .0854852 2.47 0.014 1.037206 1.373403

sp75\_902\_4\_ss\_1lag | .9673372 .0844956 -0.38 0.704 .8151294 1.147967

sp75\_902\_ss\_1lag | 1.048493 .0365717 1.36 0.175 .979209 1.122679

sp75\_903\_ss\_1lag | 1.074298 .0559851 1.38 0.169 .969987 1.189826

sp75\_904\_ss\_1lag | 1.021083 .0163529 1.30 0.193 .9895293 1.053642

sp75\_905\_ss\_1lag | 1.095202 .5405277 0.18 0.854 .4162848 2.88136

sp75\_907\_ss\_1lag | .9644248 .2252022 -0.16 0.877 .6102459 1.524165

sp77\_103\_ss\_1lag | 1.057389 .1162602 0.51 0.612 .8524026 1.31167

sp77\_1103\_ss\_1lag | .9006609 .0799158 -1.18 0.238 .7568923 1.071738

sp77\_1104\_ss\_1lag | 1.030431 .0157662 1.96 0.050 .999989 1.0618

sp77\_1106\_ss\_1lag | 3.57e-07 3.64e-07 -14.58 0.000 4.86e-08 2.63e-06

sp77\_1111\_ss\_1lag | .4713615 .1068952 -3.32 0.001 .302217 .7351725

sp77\_1112\_ss\_1lag | 1.027809 .1254381 0.22 0.822 .8091489 1.30556

sp77\_1403\_ss\_1lag | .7968319 .2955722 -0.61 0.540 .3851473 1.648567

sp77\_1433\_ss\_1lag | .6043473 .2182276 -1.39 0.163 .2977973 1.226457

sp77\_1434\_ss\_1lag | 1.049984 .2294457 0.22 0.823 .684188 1.61135

sp77\_1437\_ss\_1lag | .6002399 .1662433 -1.84 0.065 .3487988 1.032939

sp77\_1438\_ss\_1lag | .8320275 .2680516 -0.57 0.568 .4424955 1.564467

sp77\_1605\_ss\_1lag | 1.003092 .0189702 0.16 0.870 .966592 1.040971

sp77\_1606\_ss\_1lag | 1.012176 .0223217 0.55 0.583 .9693581 1.056885

sp77\_1710\_ss\_1lag | .9364404 .0250636 -2.45 0.014 .8885829 .9868755

sp77\_1802\_ss\_1lag | .643316 .3225144 -0.88 0.379 .2408188 1.718534

sp77\_1906\_ss\_1lag | .3689737 .1765652 -2.08 0.037 .144434 .9425868

sp77\_1915\_ss\_1lag | 1.280219 .2948029 1.07 0.283 .8152175 2.010458

sp77\_1916\_ss\_1lag | 1.30206 .1934198 1.78 0.076 .9731632 1.742112

sp77\_200\_ss\_1lag | .9651133 .0194755 -1.76 0.078 .9276869 1.00405

sp77\_202\_ss\_1lag | .9067408 .0273488 -3.25 0.001 .8546918 .9619596

sp77\_203\_ss\_1lag | .7321093 .1208209 -1.89 0.059 .5297868 1.011698

sp77\_204\_ss\_1lag | .970688 .0346363 -0.83 0.404 .9051216 1.041004

sp77\_205\_ss\_1lag | 1.016143 .012058 1.35 0.177 .9927824 1.040053

sp77\_206\_ss\_1lag | .9638953 .0694062 -0.51 0.610 .8370247 1.109996

sp77\_207\_ss\_1lag | 1.173444 .0782856 2.40 0.017 1.029615 1.337364

sp77\_208\_ss\_1lag | 1.02417 .0383721 0.64 0.524 .951657 1.102208

sp77\_210\_ss\_1lag | 1.001107 .0780373 0.01 0.989 .8592678 1.16636

sp77\_216\_ss\_1lag | 1.331077 .3458533 1.10 0.271 .7999004 2.214984

sp77\_315\_ss\_1lag | .6263471 .3163953 -0.93 0.354 .2327212 1.685754

sp77\_400\_ss\_1lag | 1.009193 .0134583 0.69 0.493 .9831575 1.035919

sp77\_401\_ss\_1lag | .926531 .1013625 -0.70 0.485 .7477191 1.148104

sp77\_402\_ss\_1lag | 1.080693 .0797677 1.05 0.293 .9351343 1.24891

sp77\_403\_1\_ss\_1lag | 1.050353 .1733027 0.30 0.766 .7601362 1.451373

sp77\_403\_ss\_1lag | 1.81732 .5373348 2.02 0.043 1.018012 3.244216

sp77\_404\_ss\_1lag | .9900568 .0111195 -0.89 0.374 .9685011 1.012092

sp77\_405\_ss\_1lag | 1.111194 .1263911 0.93 0.354 .8891423 1.3887

sp77\_408\_ss\_1lag | .9164697 .1246832 -0.64 0.521 .7019634 1.196525

sp77\_409\_ss\_1lag | 2.675796 1.267964 2.08 0.038 1.057059 6.773404

sp77\_410\_ss\_1lag | .9893208 .023934 -0.44 0.657 .9435058 1.037361

sp77\_411\_ss\_1lag | .6296513 .0717123 -4.06 0.000 .5036803 .7871279

sp77\_412\_ss\_1lag | 1.455994 .2794589 1.96 0.050 .9994999 2.12098

sp77\_413\_ss\_1lag | .6159615 .0781009 -3.82 0.000 .4804247 .7897358

sp77\_500\_ss\_1lag | 1.051664 .1408612 0.38 0.707 .8088466 1.367377

sp77\_501\_ss\_1lag | .9226887 .1207921 -0.61 0.539 .7138742 1.192583

sp77\_502\_1\_ss\_1lag | 1.872479 .7126933 1.65 0.099 .8880495 3.94818

sp77\_502\_2\_ss\_1lag | .8547661 .1195594 -1.12 0.262 .6498102 1.124367

sp77\_502\_ss\_1lag | 1.00285 .0198336 0.14 0.886 .9647206 1.042486

sp77\_503\_1\_ss\_1lag | .8927147 .4273428 -0.24 0.813 .3493351 2.281304

sp77\_503\_ss\_1lag | .7072796 .190389 -1.29 0.198 .4173116 1.198731

sp77\_504\_ss\_1lag | 1.005885 .0663592 0.09 0.929 .8838811 1.14473

sp77\_505\_ss\_1lag | .9424743 .052146 -1.07 0.284 .8456167 1.050426

sp77\_506\_1\_ss\_1lag | 1.259283 .2876047 1.01 0.313 .804858 1.970277

sp77\_506\_ss\_1lag | 1.095476 .1190216 0.84 0.401 .8853627 1.355453

sp77\_507\_ss\_1lag | 1.292349 .2130649 1.56 0.120 .9355033 1.785313

sp77\_508\_1\_ss\_1lag | .7468662 .6714404 -0.32 0.745 .1282342 4.349925

sp77\_508\_ss\_1lag | 1.540692 .2754284 2.42 0.016 1.085294 2.18718

sp77\_509\_ss\_1lag | .7930306 .0718963 -2.56 0.011 .6639263 .94724

sp77\_510\_ss\_1lag | .5419201 .1107813 -3.00 0.003 .3630191 .8089861

sp77\_511\_ss\_1lag | .5833517 .2442622 -1.29 0.198 .2567519 1.325401

sp77\_512\_ss\_1lag | .9946197 .046732 -0.11 0.909 .9071174 1.090563

sp77\_513\_ss\_1lag | .9724618 .0643631 -0.42 0.673 .8541519 1.107159

sp77\_514\_ss\_1lag | 3.50068 1.366527 3.21 0.001 1.628835 7.523635

sp77\_515\_ss\_1lag | 1.764379 .8193044 1.22 0.221 .7101162 4.383839

sp77\_516\_ss\_1lag | .9735855 .0424 -0.61 0.539 .8939308 1.060338

sp77\_600\_ss\_1lag | .9908242 .1923391 -0.05 0.962 .6772688 1.449547

sp77\_601\_ss\_1lag | .9977046 .2249062 -0.01 0.992 .6413883 1.551969

sp77\_602\_ss\_1lag | .9729939 .1647203 -0.16 0.872 .6982458 1.355851

sp77\_603\_ss\_1lag | 2.497333 .9638523 2.37 0.018 1.172069 5.321082

sp77\_604\_ss\_1lag | .8988513 .1269026 -0.76 0.450 .6815733 1.185395

sp77\_605\_ss\_1lag | .9356044 .6824197 -0.09 0.927 .2239933 3.907954

sp77\_606\_ss\_1lag | 1 (omitted)

sp77\_700\_1\_ss\_1lag | 1.475543 .5235639 1.10 0.273 .7360749 2.95789

sp77\_700\_ss\_1lag | .8115088 .2437075 -0.70 0.487 .4504695 1.461911

sp77\_701\_1\_ss\_1lag | 1.046243 .3047105 0.16 0.877 .5911895 1.851564

sp77\_701\_2\_ss\_1lag | .8662896 .1884504 -0.66 0.509 .5655811 1.326879

sp77\_701\_3\_ss\_1lag | 1.495615 .2490333 2.42 0.016 1.079163 2.072776

sp77\_701\_4\_ss\_1lag | .9945567 .1908308 -0.03 0.977 .6828182 1.448619

sp77\_701\_ss\_1lag | .9547292 .0539635 -0.82 0.412 .8546107 1.066577

sp77\_704\_1\_ss\_1lag | 1.096996 .1998629 0.51 0.611 .7675803 1.567785

sp77\_704\_8\_ss\_1lag | 1.775396 1.207316 0.84 0.399 .468226 6.731857

sp77\_704\_9\_ss\_1lag | 1.760865 .4065168 2.45 0.014 1.119995 2.768447

sp77\_704\_ss\_1lag | 1.093972 .3710473 0.26 0.791 .5627307 2.126728

sp77\_705\_ss\_1lag | 1.013123 .1536957 0.09 0.932 .7525419 1.363934

sp77\_800\_1\_ss\_1lag | 1.392317 .5748582 0.80 0.423 .6198623 3.127384

sp77\_800\_2\_ss\_1lag | 2.432621 .8681638 2.49 0.013 1.208632 4.896151

sp77\_800\_ss\_1lag | 2.083763 .5786694 2.64 0.008 1.209111 3.591124

sp77\_801\_1\_ss\_1lag | 4.27e-06 4.29e-06 -12.31 0.000 5.96e-07 .0000306

sp77\_802\_ss\_1lag | .7981867 .288478 -0.62 0.533 .3930665 1.62085

sp77\_803\_ss\_1lag | 4.464381 3.465707 1.93 0.054 .9749268 20.44328

sp77\_804\_ss\_1lag | 2.90e-07 2.91e-07 -15.00 0.000 4.06e-08 2.08e-06

sp77\_805\_ss\_1lag | 1.065105 .5183244 0.13 0.897 .4103579 2.764537

sp77\_807\_1\_ss\_1lag | .6125631 .2257143 -1.33 0.183 .2975118 1.261239

sp77\_807\_2\_ss\_1lag | .9792383 .3187583 -0.06 0.949 .5173783 1.853398

sp77\_807\_3\_ss\_1lag | 1.38203 .1243614 3.60 0.000 1.158571 1.64859

sp77\_807\_ss\_1lag | .94064 .2518802 -0.23 0.819 .5565352 1.589843

sp77\_808\_ss\_1lag | 1.807972 .3308711 3.24 0.001 1.263037 2.588018

sp77\_809\_ss\_1lag | .7289414 .0923295 -2.50 0.013 .5686923 .9343463

sp77\_810\_ss\_1lag | .9082335 .2614269 -0.33 0.738 .5166385 1.596645

sp77\_900\_1\_ss\_1lag | 1.444419 .3166325 1.68 0.093 .9399406 2.219657

sp77\_900\_2\_ss\_1lag | 5.99e-07 6.13e-07 -13.99 0.000 8.04e-08 4.46e-06

sp77\_900\_ss\_1lag | .9420327 .3112018 -0.18 0.857 .4930267 1.799955

sp77\_901\_1\_ss\_1lag | 1 (omitted)

sp77\_901\_ss\_1lag | .9309212 .1686779 -0.40 0.693 .6526492 1.327841

sp77\_902\_3\_ss\_1lag | 7.01e-07 6.10e-07 -16.30 0.000 1.28e-07 3.85e-06

sp77\_902\_ss\_1lag | 1.09563 .1658413 0.60 0.546 .8143686 1.474033

sp77\_903\_ss\_1lag | 1.106309 .2295384 0.49 0.626 .7366617 1.661441

sp77\_904\_ss\_1lag | .987137 .0542998 -0.24 0.814 .8862475 1.099512

mine\_time | .9985617 .0066884 -0.21 0.830 .9855383 1.011757

onsite\_insp\_hours | .9998832 .0000435 -2.68 0.007 .999798 .9999685

|

state |

1 | 1.047848 .1205107 0.41 0.684 .8363795 1.312783

2 | 1.504242 .1308803 4.69 0.000 1.268401 1.783933

3 | .7031027 .1233852 -2.01 0.045 .4984759 .9917298

4 | 1.056952 .0892342 0.66 0.512 .8957605 1.247151

5 | .899585 .1512853 -0.63 0.529 .6469841 1.250808

6 | .8301033 .0431714 -3.58 0.000 .7496585 .9191805

7 | .9933766 .2299433 -0.03 0.977 .6310747 1.563677

8 | 1.144112 .0850493 1.81 0.070 .9889924 1.323561

9 | .7423144 .0594593 -3.72 0.000 .6344635 .8684985

10 | .8539037 .1427423 -0.94 0.345 .6153445 1.184948

11 | .8726425 .2743551 -0.43 0.665 .4712184 1.616034

12 | .9805283 .0902471 -0.21 0.831 .8186839 1.174368

13 | 1.32499 .2208221 1.69 0.091 .9557666 1.836849

14 | .6056916 .0888722 -3.42 0.001 .4543139 .8075084

15 | .6505063 .0429066 -6.52 0.000 .5716198 .7402796

17 | 1.120019 .0863285 1.47 0.141 .9629787 1.302669

|

time |

2000 | 1.044019 .0730533 0.62 0.538 .9102216 1.197484

2002 | .9359662 .0668595 -0.93 0.354 .8136839 1.076625

2003 | .879731 .0695508 -1.62 0.105 .7534503 1.027177

2004 | .8322906 .0636256 -2.40 0.016 .7164793 .9668214

2005 | .7176531 .0552771 -4.31 0.000 .6170934 .8345996

2006 | .6906052 .053304 -4.80 0.000 .5936498 .8033954

2007 | .6587213 .053863 -5.11 0.000 .5611769 .773221

2008 | .576971 .0479017 -6.62 0.000 .4903259 .678927

2009 | .4673381 .0405769 -8.76 0.000 .3942076 .5540351

2010 | .5037887 .0444185 -7.78 0.000 .4238371 .5988222

2011 | .5283986 .0471301 -7.15 0.000 .443649 .6293379

2012 | .5378865 .049141 -6.79 0.000 .4497027 .6433627

2013 | .4553673 .0443381 -8.08 0.000 .376255 .5511139

2014 | .4416248 .0459802 -7.85 0.000 .3601056 .5415981

2015 | .4796421 .0520342 -6.77 0.000 .38777 .5932808

|

\_cons | .0000181 1.27e-06 -154.89 0.000 .0000157 .0000207

ln(hours) | 1 (exposure)

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

**. eststo: nbreg MR `subpart\_sigsub\_lag\_1\_vars' `covariates' ib(freq).state ib(freq).time, vce(cl mineid) exposure(hours) iter(50) irr**

note: sp77\_606\_ss\_1lag omitted because of collinearity

note: sp77\_901\_1\_ss\_1lag omitted because of collinearity

Fitting Poisson model:

Iteration 0: log pseudolikelihood = -81170.067

Iteration 1: log pseudolikelihood = -50097.999 (backed up)

Iteration 2: log pseudolikelihood = -25814.064

Iteration 3: log pseudolikelihood = -15721.582

Iteration 4: log pseudolikelihood = -9480.2057

Iteration 5: log pseudolikelihood = -8752.7219

Iteration 6: log pseudolikelihood = -8640.4415

Iteration 7: log pseudolikelihood = -8638.2042

Iteration 8: log pseudolikelihood = -8638.2006

Iteration 9: log pseudolikelihood = -8638.2006

Fitting constant-only model:

Iteration 0: log pseudolikelihood = -9249.9658

Iteration 1: log pseudolikelihood = -8971.6355

Iteration 2: log pseudolikelihood = -8961.958

Iteration 3: log pseudolikelihood = -8961.9317

Iteration 4: log pseudolikelihood = -8961.9317

Fitting full model:

Iteration 0: log pseudolikelihood = -8582.6346

Iteration 1: log pseudolikelihood = -8497.4886

Iteration 2: log pseudolikelihood = -8490.8093

Iteration 3: log pseudolikelihood = -8490.7808

Iteration 4: log pseudolikelihood = -8490.7808

Negative binomial regression Number of obs = 6,253

Wald chi2(296) = .

Dispersion = mean Prob > chi2 = .

Log pseudolikelihood = -8490.7808 Pseudo R2 = 0.0526

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

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| Robust

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

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

sp47\_41\_ss\_1lag | .623365 .1747189 -1.69 0.092 .3598858 1.079742

sp47\_44\_ss\_1lag | 1.078017 .1695202 0.48 0.633 .7920864 1.467164

sp48\_11\_ss\_1lag | .9611177 .0610125 -0.62 0.532 .8486754 1.088458

sp48\_25\_ss\_1lag | .9775703 .1023959 -0.22 0.829 .7961385 1.200349

sp48\_26\_ss\_1lag | 1.139848 .0686035 2.17 0.030 1.013015 1.28256

sp48\_27\_ss\_1lag | 1.049227 .0869874 0.58 0.562 .8918659 1.234353

sp48\_28\_ss\_1lag | .8232374 .0963659 -1.66 0.097 .6544641 1.035534

sp48\_4\_ss\_1lag | 2.300916 .2903769 6.60 0.000 1.796713 2.946612

sp48\_5\_ss\_1lag | .9667193 .0872805 -0.37 0.708 .8099337 1.153855

sp48\_6\_ss\_1lag | .9470639 .0968312 -0.53 0.595 .775085 1.157202

sp48\_7\_ss\_1lag | 1.158804 .0700524 2.44 0.015 1.029326 1.304569

sp48\_8\_ss\_1lag | 1.087086 .1621826 0.56 0.576 .8114712 1.456314

sp71\_701\_ss\_1lag | 2.378668 .5830669 3.54 0.000 1.471243 3.845768

sp72\_503\_ss\_1lag | .969697 .2351938 -0.13 0.899 .6028129 1.559874

sp72\_610\_ss\_1lag | .7445665 .2167578 -1.01 0.311 .4208256 1.317361

sp72\_620\_ss\_1lag | 1.438665 .3421167 1.53 0.126 .9026985 2.292856

sp72\_630\_ss\_1lag | 1.020036 .010558 1.92 0.055 .9995513 1.040941

sp75\_100\_ss\_1lag | 1.222809 .2870743 0.86 0.392 .7718367 1.937279

sp75\_1001\_1\_ss\_1lag | 1.561775 1.156851 0.60 0.547 .3656867 6.670029

sp75\_1001\_ss\_1lag | 1.665786 .963641 0.88 0.378 .5360525 5.176438

sp75\_1003\_1\_ss\_1lag | .6371984 .1246873 -2.30 0.021 .4342213 .9350572

sp75\_1100\_2\_ss\_1lag | 1.021701 .014412 1.52 0.128 .9938412 1.050343

sp75\_1101\_20\_ss\_1lag | .7503878 .092408 -2.33 0.020 .5894716 .9552316

sp75\_1102\_ss\_1lag | .9034514 .0524622 -1.75 0.080 .8062629 1.012355

sp75\_1103\_4\_ss\_1lag | 1.045939 .0329875 1.42 0.154 .9832429 1.112634

sp75\_1104\_ss\_1lag | 1.083916 .1533821 0.57 0.569 .8213805 1.430365

sp75\_1106\_2\_ss\_1lag | .9653131 .0608858 -0.56 0.576 .8530605 1.092337

sp75\_1106\_3\_ss\_1lag | 1.04913 .0307581 1.64 0.102 .9905449 1.111181

sp75\_1106\_4\_ss\_1lag | 1.040661 .1757868 0.24 0.813 .7473527 1.449082

sp75\_1106\_5\_ss\_1lag | .9438751 .0775826 -0.70 0.482 .8034324 1.108868

sp75\_1106\_6\_ss\_1lag | .4862823 .1874829 -1.87 0.061 .2284091 1.035294

sp75\_1106\_ss\_1lag | .8788419 .1013599 -1.12 0.263 .7010333 1.101749

sp75\_1107\_14\_ss\_1lag | 1.573045 .4391051 1.62 0.105 .9101938 2.71862

sp75\_1400\_1\_ss\_1lag | .8445873 .1701464 -0.84 0.402 .5690699 1.253497

sp75\_1400\_2\_ss\_1lag | .4969673 .3294056 -1.05 0.291 .1355579 1.821927

sp75\_1400\_3\_ss\_1lag | .9614882 .1063807 -0.35 0.723 .7740439 1.194325

sp75\_1400\_4\_ss\_1lag | .7200537 .1463699 -1.62 0.106 .4834324 1.072492

sp75\_1400\_ss\_1lag | 1.114605 .0687027 1.76 0.078 .9877663 1.257732

sp75\_1401\_ss\_1lag | 1.16926 .2796226 0.65 0.513 .7317296 1.868408

sp75\_1403\_10\_ss\_1lag | .9947589 .0193508 -0.27 0.787 .9575459 1.033418

sp75\_1403\_11\_ss\_1lag | 3.277519 1.291518 3.01 0.003 1.514001 7.095194

sp75\_1403\_3\_ss\_1lag | 1.075469 .5729921 0.14 0.891 .3785224 3.055653

sp75\_1403\_4\_ss\_1lag | 1.013543 .2494932 0.05 0.956 .6256206 1.642002

sp75\_1403\_5\_ss\_1lag | .9786245 .011344 -1.86 0.062 .9566414 1.001113

sp75\_1403\_6\_ss\_1lag | 1.00334 .0115573 0.29 0.772 .9809416 1.026249

sp75\_1403\_7\_ss\_1lag | .9994912 .0519815 -0.01 0.992 .90263 1.106747

sp75\_1403\_8\_ss\_1lag | .9740483 .0278404 -0.92 0.358 .9209824 1.030172

sp75\_1403\_9\_ss\_1lag | .8909916 .0995794 -1.03 0.302 .7157168 1.10919

sp75\_1404\_1\_ss\_1lag | .5426947 .1741105 -1.91 0.057 .2893797 1.017755

sp75\_1404\_ss\_1lag | .6672543 .1803088 -1.50 0.134 .392894 1.133202

sp75\_1405\_1\_ss\_1lag | 1.616932 1.082967 0.72 0.473 .4350961 6.008945

sp75\_1405\_ss\_1lag | 1.004034 .0175828 0.23 0.818 .9701569 1.039094

sp75\_1431\_ss\_1lag | 1.032415 .3310312 0.10 0.921 .5507149 1.935449

sp75\_1432\_ss\_1lag | 1.51e-10 1.12e-10 -30.49 0.000 3.52e-11 6.45e-10

sp75\_1433\_ss\_1lag | 1.147316 .2045924 0.77 0.441 .8088992 1.627315

sp75\_1434\_ss\_1lag | 1.109998 .1068688 1.08 0.278 .9191153 1.340524

sp75\_1435\_ss\_1lag | 1.059566 .4404916 0.14 0.889 .4690935 2.393297

sp75\_1437\_ss\_1lag | 1.437775 .3821558 1.37 0.172 .8539734 2.42068

sp75\_150\_ss\_1lag | 1.264404 .3197095 0.93 0.354 .7702935 2.075465

sp75\_151\_ss\_1lag | .8463558 .1575584 -0.90 0.370 .5876144 1.219027

sp75\_153\_ss\_1lag | 2.136943 2.027138 0.80 0.423 .3329123 13.7169

sp75\_155\_ss\_1lag | 1.071008 .4141058 0.18 0.859 .5019669 2.285126

sp75\_156\_ss\_1lag | 1.806737 .5410556 1.98 0.048 1.004591 3.24938

sp75\_1600\_2\_ss\_1lag | .7720156 .0952158 -2.10 0.036 .6062391 .9831238

sp75\_1712\_10\_ss\_1lag | .961547 .1670438 -0.23 0.821 .6840635 1.351589

sp75\_1712\_6\_ss\_1lag | 1.077471 .5635799 0.14 0.887 .3865254 3.00354

sp75\_1720\_ss\_1lag | 1.019415 .0369667 0.53 0.596 .9494768 1.094506

sp75\_1721\_ss\_1lag | 2.19e-10 1.67e-10 -29.22 0.000 4.93e-11 9.73e-10

sp75\_1725\_ss\_1lag | 1.001004 .0046697 0.22 0.830 .9918933 1.010199

sp75\_1726\_ss\_1lag | 1.165244 .1134593 1.57 0.116 .962799 1.410256

sp75\_1727\_ss\_1lag | 1.216245 .2120352 1.12 0.261 .8642233 1.711654

sp75\_1728\_ss\_1lag | 1.587874 .2432583 3.02 0.003 1.176018 2.143966

sp75\_1729\_ss\_1lag | 1.195895 .2038171 1.05 0.294 .8562931 1.670182

sp75\_1730\_ss\_1lag | .8055179 .1321343 -1.32 0.187 .5840461 1.110972

sp75\_1731\_ss\_1lag | 1.002686 .0046964 0.57 0.567 .993523 1.011933

sp75\_1903\_ss\_1lag | .9897126 .1275625 -0.08 0.936 .7687747 1.274146

sp75\_1909\_ss\_1lag | 1.015898 .0154045 1.04 0.298 .9861498 1.046543

sp75\_1910\_ss\_1lag | .9919014 .0257686 -0.31 0.754 .9426601 1.043715

sp75\_1911\_ss\_1lag | .9474606 .0377214 -1.36 0.175 .8763389 1.024354

sp75\_1912\_ss\_1lag | 1.453495 .4708777 1.15 0.248 .7702931 2.742653

sp75\_1913\_ss\_1lag | 1.170658 .0660347 2.79 0.005 1.048131 1.307509

sp75\_1914\_ss\_1lag | 1.026404 .0133424 2.00 0.045 1.000584 1.052891

sp75\_1915\_ss\_1lag | 1.101294 .276913 0.38 0.701 .6727817 1.802736

sp75\_202\_ss\_1lag | 1.00202 .0028761 0.70 0.482 .9963987 1.007673

sp75\_208\_ss\_1lag | 1.017275 .0193545 0.90 0.368 .980039 1.055925

sp75\_211\_ss\_1lag | 1.00432 .0181466 0.24 0.811 .9693758 1.040524

sp75\_212\_ss\_1lag | .9729391 .0470114 -0.57 0.570 .8850269 1.069584

sp75\_214\_ss\_1lag | 1.112244 .1536522 0.77 0.441 .8484176 1.458109

sp75\_312\_ss\_1lag | 1.037679 .1508522 0.25 0.799 .7804051 1.379769

sp75\_320\_ss\_1lag | 1.008767 .0540792 0.16 0.871 .9081525 1.120529

sp75\_324\_ss\_1lag | 1.00874 .0548443 0.16 0.873 .906776 1.122169

sp75\_337\_ss\_1lag | 1.060527 .0404259 1.54 0.123 .9841813 1.142795

sp75\_340\_ss\_1lag | 1.023471 .0172142 1.38 0.168 .9902817 1.057772

sp75\_342\_ss\_1lag | 1.003216 .0105235 0.31 0.760 .982801 1.024055

sp75\_344\_ss\_1lag | .9321358 .0968998 -0.68 0.499 .7603139 1.142787

sp75\_352\_ss\_1lag | 1.043449 .0643692 0.69 0.491 .9246169 1.177555

sp75\_382\_ss\_1lag | 1.203757 .1434552 1.56 0.120 .9530122 1.520474

sp75\_503\_ss\_1lag | .9934153 .0053562 -1.23 0.220 .9829727 1.003969

sp75\_504\_ss\_1lag | .6438182 .1435264 -1.98 0.048 .4159152 .9966018

sp75\_505\_ss\_1lag | .956645 .239719 -0.18 0.860 .585402 1.563318

sp75\_506\_1\_ss\_1lag | 1.149953 .3107682 0.52 0.605 .6770923 1.953046

sp75\_506\_ss\_1lag | .9185766 .1701262 -0.46 0.647 .6389509 1.320576

sp75\_507\_ss\_1lag | 1.06286 .0818145 0.79 0.428 .9140169 1.235942

sp75\_511\_1\_ss\_1lag | .2658418 .0882663 -3.99 0.000 .1386764 .5096173

sp75\_511\_ss\_1lag | 1.109934 .0594203 1.95 0.051 .9993737 1.232725

sp75\_512\_1\_ss\_1lag | 1.997447 .7927252 1.74 0.081 .9176134 4.348014

sp75\_512\_2\_ss\_1lag | 1.027426 .0481177 0.58 0.563 .9373161 1.126199

sp75\_512\_ss\_1lag | 1.009216 .0074081 1.25 0.211 .9947998 1.02384

sp75\_513\_1\_ss\_1lag | 1.225039 .3703116 0.67 0.502 .6773981 2.215419

sp75\_513\_ss\_1lag | .7714984 .0940891 -2.13 0.033 .6074711 .9798157

sp75\_514\_ss\_1lag | 1.035641 .025933 1.40 0.162 .9860407 1.087737

sp75\_515\_ss\_1lag | .9059742 .0241029 -3.71 0.000 .8599439 .9544683

sp75\_516\_1\_ss\_1lag | .6300181 .1881882 -1.55 0.122 .3508299 1.131382

sp75\_516\_2\_ss\_1lag | .8631728 .2805431 -0.45 0.651 .4565049 1.632112

sp75\_516\_ss\_1lag | 1.045783 .0539704 0.87 0.386 .9451765 1.157097

sp75\_517\_1\_ss\_1lag | .7750651 .1831072 -1.08 0.281 .4878025 1.231494

sp75\_517\_ss\_1lag | 1.000209 .0043797 0.05 0.962 .9916621 1.008831

sp75\_518\_1\_ss\_1lag | .8862426 .0565222 -1.89 0.058 .7821053 1.004246

sp75\_518\_ss\_1lag | 1.055927 .0216783 2.65 0.008 1.014282 1.099282

sp75\_519\_ss\_1lag | .8430473 .7421759 -0.19 0.846 .1501404 4.733762

sp75\_520\_ss\_1lag | .968268 .0357205 -0.87 0.382 .9007282 1.040872

sp75\_523\_1\_ss\_1lag | .966791 .030456 -1.07 0.284 .9089037 1.028365

sp75\_523\_2\_ss\_1lag | 1.023626 .0308855 0.77 0.439 .9648462 1.085986

sp75\_523\_ss\_1lag | .9056881 .0303238 -2.96 0.003 .8481626 .9671152

sp75\_600\_1\_ss\_1lag | .7368848 .1127702 -2.00 0.046 .5459273 .9946365

sp75\_600\_ss\_1lag | .6242631 .0836168 -3.52 0.000 .4801242 .8116742

sp75\_601\_1\_ss\_1lag | .9958408 .0253574 -0.16 0.870 .9473609 1.046801

sp75\_601\_2\_ss\_1lag | .9188921 .3420641 -0.23 0.820 .4429948 1.906033

sp75\_601\_3\_ss\_1lag | 1.049811 .4675356 0.11 0.913 .4385579 2.513018

sp75\_601\_ss\_1lag | 1.046234 .0264368 1.79 0.074 .9956814 1.099354

sp75\_602\_ss\_1lag | 1.046147 .0694882 0.68 0.497 .9184456 1.191604

sp75\_603\_ss\_1lag | 1.021044 .0767408 0.28 0.782 .8811881 1.183096

sp75\_604\_ss\_1lag | 1.022162 .0065462 3.42 0.001 1.009412 1.035073

sp75\_605\_ss\_1lag | 1.038307 .0344101 1.13 0.257 .9730085 1.107989

sp75\_606\_ss\_1lag | .9901548 .0174603 -0.56 0.575 .9565178 1.024975

sp75\_607\_ss\_1lag | 1.026004 .0595561 0.44 0.658 .9156712 1.149631

sp75\_700\_1\_ss\_1lag | .5352203 .1110105 -3.01 0.003 .3564381 .8036759

sp75\_700\_ss\_1lag | .8656562 .0525232 -2.38 0.017 .768598 .9749708

sp75\_701\_1\_ss\_1lag | .9044998 .0689549 -1.32 0.188 .7789629 1.050268

sp75\_701\_2\_ss\_1lag | 1.190131 .1179858 1.76 0.079 .9799623 1.445374

sp75\_701\_3\_ss\_1lag | 1.127354 .1116111 1.21 0.226 .9285154 1.368773

sp75\_701\_4\_ss\_1lag | 2.28328 .9568314 1.97 0.049 1.00428 5.191152

sp75\_701\_5\_ss\_1lag | .846488 .0686049 -2.06 0.040 .7221608 .9922194

sp75\_701\_ss\_1lag | 1.028112 .0209609 1.36 0.174 .9878389 1.070026

sp75\_703\_2\_ss\_1lag | 1.00945 .1582587 0.06 0.952 .7423964 1.372568

sp75\_703\_3\_ss\_1lag | 1.121968 .1582945 0.82 0.415 .8509179 1.479359

sp75\_703\_ss\_1lag | .9966862 .0524809 -0.06 0.950 .8989552 1.105042

sp75\_704\_ss\_1lag | 1.008077 .7174967 0.01 0.991 .2498349 4.067565

sp75\_705\_1\_ss\_1lag | .8346527 .0738772 -2.04 0.041 .7017199 .9927681

sp75\_705\_8\_ss\_1lag | 1.23e-10 1.23e-10 -22.73 0.000 1.72e-11 8.79e-10

sp75\_705\_ss\_1lag | 1.182315 .1535517 1.29 0.197 .9166094 1.525042

sp75\_706\_ss\_1lag | .969985 .1172112 -0.25 0.801 .7654334 1.2292

sp75\_800\_2\_ss\_1lag | 5.83e-11 5.85e-11 -23.51 0.000 8.17e-12 4.16e-10

sp75\_800\_3\_ss\_1lag | .7896545 .2898502 -0.64 0.520 .3845878 1.621357

sp75\_800\_4\_ss\_1lag | 3.857473 1.523953 3.42 0.001 1.778373 8.367252

sp75\_800\_ss\_1lag | 1.009134 .0768699 0.12 0.905 .8691794 1.171625

sp75\_801\_ss\_1lag | .7141542 .1930967 -1.25 0.213 .4203778 1.213233

sp75\_802\_ss\_1lag | .6969435 .2281923 -1.10 0.270 .3668582 1.324027

sp75\_803\_2\_ss\_1lag | 1.338225 .3838295 1.02 0.310 .7627592 2.347851

sp75\_803\_ss\_1lag | .990022 .0892489 -0.11 0.911 .8296795 1.181352

sp75\_804\_ss\_1lag | .9730338 .0573343 -0.46 0.643 .8669067 1.092153

sp75\_805\_ss\_1lag | .7647047 .1069795 -1.92 0.055 .5813179 1.005944

sp75\_806\_ss\_1lag | 1.010738 .2354347 0.05 0.963 .6402728 1.595555

sp75\_807\_ss\_1lag | 1.040102 .0253625 1.61 0.107 .9915618 1.091019

sp75\_808\_ss\_1lag | .9341555 .1310217 -0.49 0.627 .7096307 1.229719

sp75\_809\_ss\_1lag | .9720822 .0603524 -0.46 0.648 .8607074 1.097869

sp75\_810\_ss\_1lag | 1.213276 .1234349 1.90 0.057 .9939422 1.481011

sp75\_811\_ss\_1lag | 1.023928 .1041404 0.23 0.816 .8388734 1.249805

sp75\_812\_ss\_1lag | .9924862 .1942926 -0.04 0.969 .6762235 1.456662

sp75\_814\_ss\_1lag | .8378518 .1065607 -1.39 0.164 .6529932 1.075043

sp75\_815\_ss\_1lag | 1.592878 .5630379 1.32 0.188 .7967212 3.184626

sp75\_816\_ss\_1lag | 1.137586 .0917724 1.60 0.110 .9712151 1.332457

sp75\_818\_ss\_1lag | 1.26312 .218169 1.35 0.176 .9003747 1.77201

sp75\_819\_ss\_1lag | 1.314881 .504991 0.71 0.476 .6194063 2.791242

sp75\_820\_ss\_1lag | 1.010709 .1373752 0.08 0.938 .7743386 1.319231

sp75\_821\_ss\_1lag | .8887634 .2626298 -0.40 0.690 .4980304 1.586048

sp75\_825\_ss\_1lag | 1.156486 .3902066 0.43 0.667 .5969516 2.240484

sp75\_827\_ss\_1lag | .9547427 .4671625 -0.09 0.925 .3659209 2.491067

sp75\_831\_ss\_1lag | .9749649 .1333953 -0.19 0.853 .7456363 1.274826

sp75\_900\_2\_ss\_1lag | .8743183 .2378664 -0.49 0.622 .5129704 1.490208

sp75\_900\_3\_ss\_1lag | .9446076 .1085646 -0.50 0.620 .7540881 1.183262

sp75\_900\_4\_ss\_1lag | 1.160707 .2002904 0.86 0.388 .8276373 1.627815

sp75\_900\_ss\_1lag | .9634761 .0277169 -1.29 0.196 .9106552 1.019361

sp75\_901\_ss\_1lag | 1.073567 .1086145 0.70 0.483 .8804641 1.309021

sp75\_902\_1\_ss\_1lag | 1.074866 .2278256 0.34 0.733 .7094735 1.628444

sp75\_902\_2\_ss\_1lag | 1.19748 .0772363 2.79 0.005 1.055277 1.358845

sp75\_902\_4\_ss\_1lag | 1.001048 .0710727 0.01 0.988 .8710054 1.150505

sp75\_902\_ss\_1lag | 1.046055 .0318422 1.48 0.139 .9854711 1.110364

sp75\_903\_ss\_1lag | 1.056584 .0521975 1.11 0.265 .9590755 1.164006

sp75\_904\_ss\_1lag | 1.011466 .0137462 0.84 0.402 .9848795 1.03877

sp75\_905\_ss\_1lag | 1.314824 .6105561 0.59 0.556 .5291768 3.266889

sp75\_907\_ss\_1lag | .8982554 .1841071 -0.52 0.601 .6010865 1.342341

sp77\_103\_ss\_1lag | 1.025567 .1049809 0.25 0.805 .8391347 1.253418

sp77\_1103\_ss\_1lag | .8920091 .0671543 -1.52 0.129 .7696392 1.033835

sp77\_1104\_ss\_1lag | 1.035295 .0135434 2.65 0.008 1.009088 1.062182

sp77\_1106\_ss\_1lag | 3.69e-11 3.73e-11 -23.77 0.000 5.09e-12 2.67e-10

sp77\_1111\_ss\_1lag | .4621638 .0788678 -4.52 0.000 .3307799 .6457325

sp77\_1112\_ss\_1lag | 1.017785 .0823576 0.22 0.828 .8685165 1.192707

sp77\_1403\_ss\_1lag | .7424958 .2693824 -0.82 0.412 .3646469 1.511874

sp77\_1433\_ss\_1lag | .5725796 .1811319 -1.76 0.078 .3080092 1.064408

sp77\_1434\_ss\_1lag | .9150405 .156826 -0.52 0.604 .6539664 1.280339

sp77\_1437\_ss\_1lag | .7258349 .133856 -1.74 0.082 .5056641 1.04187

sp77\_1438\_ss\_1lag | .6909026 .31479 -0.81 0.417 .2828728 1.687495

sp77\_1605\_ss\_1lag | 1.00545 .0169858 0.32 0.748 .9727031 1.039298

sp77\_1606\_ss\_1lag | 1.01989 .0219195 0.92 0.359 .9778207 1.063769

sp77\_1710\_ss\_1lag | .9484503 .0230208 -2.18 0.029 .9043868 .9946608

sp77\_1802\_ss\_1lag | .758856 .3247201 -0.64 0.519 .3280379 1.755476

sp77\_1906\_ss\_1lag | .5196743 .2296122 -1.48 0.138 .2185937 1.235449

sp77\_1915\_ss\_1lag | 1.29774 .2733365 1.24 0.216 .8588222 1.960975

sp77\_1916\_ss\_1lag | 1.277215 .1224238 2.55 0.011 1.05846 1.54118

sp77\_200\_ss\_1lag | .9749009 .0159175 -1.56 0.120 .944197 1.006603

sp77\_202\_ss\_1lag | .9276522 .022031 -3.16 0.002 .8854618 .9718529

sp77\_203\_ss\_1lag | .8070642 .1186872 -1.46 0.145 .6049648 1.076679

sp77\_204\_ss\_1lag | .9844225 .0284705 -0.54 0.587 .9301733 1.041836

sp77\_205\_ss\_1lag | 1.010215 .0089931 1.14 0.254 .9927417 1.027996

sp77\_206\_ss\_1lag | 1.001396 .0672221 0.02 0.983 .8779425 1.142209

sp77\_207\_ss\_1lag | 1.153389 .070057 2.35 0.019 1.023938 1.299206

sp77\_208\_ss\_1lag | 1.015564 .0344881 0.45 0.649 .9501687 1.085459

sp77\_210\_ss\_1lag | 1.002803 .0800139 0.04 0.972 .8576263 1.172555

sp77\_216\_ss\_1lag | 1.359778 .311197 1.34 0.179 .8682869 2.129477

sp77\_315\_ss\_1lag | .7659001 .3537442 -0.58 0.564 .3097633 1.893714

sp77\_400\_ss\_1lag | 1.00254 .0091508 0.28 0.781 .9847642 1.020636

sp77\_401\_ss\_1lag | .9678263 .0938247 -0.34 0.736 .8003478 1.170351

sp77\_402\_ss\_1lag | 1.039954 .0637887 0.64 0.523 .922153 1.172803

sp77\_403\_1\_ss\_1lag | 1.087271 .1359913 0.67 0.504 .8508894 1.389321

sp77\_403\_ss\_1lag | 1.729325 .4804876 1.97 0.049 1.003166 2.981126

sp77\_404\_ss\_1lag | .9821825 .0100522 -1.76 0.079 .9626769 1.002083

sp77\_405\_ss\_1lag | 1.059342 .0867685 0.70 0.482 .9022272 1.243816

sp77\_408\_ss\_1lag | .9204878 .1312002 -0.58 0.561 .696135 1.217146

sp77\_409\_ss\_1lag | 2.032271 .9893698 1.46 0.145 .7826929 5.276814

sp77\_410\_ss\_1lag | .9968506 .019876 -0.16 0.874 .9586457 1.036578

sp77\_411\_ss\_1lag | .5856032 .0585921 -5.35 0.000 .4813236 .7124752

sp77\_412\_ss\_1lag | 1.30525 .2425815 1.43 0.152 .9067702 1.878841

sp77\_413\_ss\_1lag | .6908844 .078426 -3.26 0.001 .553071 .8630378

sp77\_500\_ss\_1lag | .9970688 .1263958 -0.02 0.982 .7777151 1.278291

sp77\_501\_ss\_1lag | .9695547 .1037699 -0.29 0.773 .7860851 1.195845

sp77\_502\_1\_ss\_1lag | 2.034089 .6993468 2.07 0.039 1.036849 3.990472

sp77\_502\_2\_ss\_1lag | .8778919 .1056932 -1.08 0.279 .6933639 1.111529

sp77\_502\_ss\_1lag | .9971995 .017112 -0.16 0.870 .9642183 1.031309

sp77\_503\_1\_ss\_1lag | .7147231 .277466 -0.87 0.387 .3339558 1.529631

sp77\_503\_ss\_1lag | .9084356 .1942961 -0.45 0.653 .5973643 1.381494

sp77\_504\_ss\_1lag | .9729613 .0555092 -0.48 0.631 .8700275 1.088073

sp77\_505\_ss\_1lag | .944496 .0458852 -1.18 0.240 .8587116 1.03885

sp77\_506\_1\_ss\_1lag | 1.298273 .3100873 1.09 0.274 .8129426 2.073347

sp77\_506\_ss\_1lag | 1.065398 .1167607 0.58 0.563 .85946 1.320681

sp77\_507\_ss\_1lag | 1.30048 .1727492 1.98 0.048 1.002385 1.687225

sp77\_508\_1\_ss\_1lag | .5986195 .5073585 -0.61 0.545 .1136886 3.151988

sp77\_508\_ss\_1lag | 1.459132 .2221587 2.48 0.013 1.082669 1.966497

sp77\_509\_ss\_1lag | .8081169 .0705947 -2.44 0.015 .6809507 .959031

sp77\_510\_ss\_1lag | .6705131 .1146543 -2.34 0.019 .4795746 .9374722

sp77\_511\_ss\_1lag | .7416618 .3074717 -0.72 0.471 .3290957 1.671436

sp77\_512\_ss\_1lag | .9853306 .0399727 -0.36 0.716 .9100194 1.066874

sp77\_513\_ss\_1lag | .9848707 .059636 -0.25 0.801 .8746557 1.108974

sp77\_514\_ss\_1lag | 3.157286 1.158046 3.13 0.002 1.538528 6.479212

sp77\_515\_ss\_1lag | 1.999691 .874738 1.58 0.113 .8484301 4.713132

sp77\_516\_ss\_1lag | .9773026 .0361544 -0.62 0.535 .9089493 1.050796

sp77\_600\_ss\_1lag | .9846935 .1588312 -0.10 0.924 .7177977 1.350828

sp77\_601\_ss\_1lag | 1.140322 .2290969 0.65 0.513 .7691597 1.690591

sp77\_602\_ss\_1lag | 1.070337 .1939201 0.38 0.708 .750417 1.526646

sp77\_603\_ss\_1lag | 2.628078 .8414496 3.02 0.003 1.403147 4.922358

sp77\_604\_ss\_1lag | .8706995 .0997336 -1.21 0.227 .6956136 1.089855

sp77\_605\_ss\_1lag | .7185169 .5926975 -0.40 0.689 .1426557 3.618968

sp77\_606\_ss\_1lag | 1 (omitted)

sp77\_700\_1\_ss\_1lag | 1.309619 .4155874 0.85 0.395 .7031194 2.439274

sp77\_700\_ss\_1lag | .8091088 .2359458 -0.73 0.468 .4568634 1.432938

sp77\_701\_1\_ss\_1lag | 1.127204 .3365128 0.40 0.688 .6278948 2.02357

sp77\_701\_2\_ss\_1lag | .8598579 .1863111 -0.70 0.486 .56233 1.314807

sp77\_701\_3\_ss\_1lag | 1.417764 .2287619 2.16 0.031 1.033377 1.94513

sp77\_701\_4\_ss\_1lag | 1.024237 .2072163 0.12 0.906 .688956 1.522683

sp77\_701\_ss\_1lag | .9630641 .0468395 -0.77 0.439 .8755001 1.059386

sp77\_704\_1\_ss\_1lag | 1.136617 .2103226 0.69 0.489 .7908707 1.633513

sp77\_704\_8\_ss\_1lag | 1.481116 .8256734 0.70 0.481 .4966747 4.416782

sp77\_704\_9\_ss\_1lag | 1.918125 .4403058 2.84 0.005 1.223161 3.007948

sp77\_704\_ss\_1lag | 1.128371 .3189902 0.43 0.669 .6483618 1.963751

sp77\_705\_ss\_1lag | .9075783 .1536517 -0.57 0.567 .6512938 1.264711

sp77\_800\_1\_ss\_1lag | 1.177159 .5852509 0.33 0.743 .4442641 3.119098

sp77\_800\_2\_ss\_1lag | 2.569044 .7170123 3.38 0.001 1.486633 4.439553

sp77\_800\_ss\_1lag | 1.797693 .5799316 1.82 0.069 .9552564 3.383071

sp77\_801\_1\_ss\_1lag | 5.17e-10 5.19e-10 -21.30 0.000 7.23e-11 3.70e-09

sp77\_802\_ss\_1lag | .9797404 .3198627 -0.06 0.950 .5166701 1.857842

sp77\_803\_ss\_1lag | 2.946373 2.408842 1.32 0.186 .5934415 14.62842

sp77\_804\_ss\_1lag | 3.65e-11 3.67e-11 -23.96 0.000 5.12e-12 2.61e-10

sp77\_805\_ss\_1lag | 1.139205 .4345848 0.34 0.733 .5393673 2.406129

sp77\_807\_1\_ss\_1lag | .6656162 .2085152 -1.30 0.194 .3602227 1.22992

sp77\_807\_2\_ss\_1lag | 1.027751 .273463 0.10 0.918 .6100996 1.73131

sp77\_807\_3\_ss\_1lag | 1.395802 .0916706 5.08 0.000 1.227214 1.587549

sp77\_807\_ss\_1lag | .923857 .1981453 -0.37 0.712 .6067954 1.406589

sp77\_808\_ss\_1lag | 1.806086 .2849674 3.75 0.000 1.325667 2.460609

sp77\_809\_ss\_1lag | .7657958 .0947897 -2.16 0.031 .6008304 .9760546

sp77\_810\_ss\_1lag | .9437775 .2549121 -0.21 0.830 .5558557 1.602423

sp77\_900\_1\_ss\_1lag | 1.605695 .3239302 2.35 0.019 1.081292 2.384422

sp77\_900\_2\_ss\_1lag | 7.37e-11 7.49e-11 -22.95 0.000 1.01e-11 5.40e-10

sp77\_900\_ss\_1lag | .8451843 .2550729 -0.56 0.577 .4678025 1.527004

sp77\_901\_1\_ss\_1lag | 1 (omitted)

sp77\_901\_ss\_1lag | .881241 .1447426 -0.77 0.441 .6386841 1.215915

sp77\_902\_3\_ss\_1lag | 1.37e-10 1.18e-10 -26.26 0.000 2.51e-11 7.44e-10

sp77\_902\_ss\_1lag | 1.109657 .1468182 0.79 0.432 .8561832 1.438172

sp77\_903\_ss\_1lag | 1.077639 .1908945 0.42 0.673 .7615358 1.524953

sp77\_904\_ss\_1lag | .9911459 .0492189 -0.18 0.858 .8992245 1.092464

mine\_time | .9962982 .0063145 -0.59 0.558 .9839987 1.008752

onsite\_insp\_hours | .9998761 .0000402 -3.08 0.002 .9997973 .9999549

|

state |

1 | 1.052495 .0974061 0.55 0.580 .8778968 1.261819

2 | 1.707866 .1373512 6.66 0.000 1.458807 1.999446

3 | .6906305 .1208171 -2.12 0.034 .4901611 .9730894

4 | 1.06253 .073202 0.88 0.379 .9283214 1.216141

5 | .8984472 .1455613 -0.66 0.509 .6540121 1.234239

6 | .8868557 .046059 -2.31 0.021 .8010243 .9818841

7 | 1.059581 .2432407 0.25 0.801 .675662 1.661646

8 | .9362758 .0714079 -0.86 0.388 .8062772 1.087235

9 | .7530168 .0530307 -4.03 0.000 .6559329 .8644699

10 | .99535 .1284656 -0.04 0.971 .772885 1.281849

11 | .866192 .2493508 -0.50 0.618 .4926956 1.522824

12 | .9731437 .0849447 -0.31 0.755 .8201182 1.154722

13 | 1.269155 .1904302 1.59 0.112 .9457935 1.703072

14 | .5867809 .0789318 -3.96 0.000 .4507909 .7637948

15 | .672638 .0434444 -6.14 0.000 .5926578 .7634118

17 | 1.070059 .0896234 0.81 0.419 .9080608 1.260958

|

time |

2000 | 1.074869 .0677773 1.14 0.252 .9499092 1.216268

2002 | .9824245 .0601686 -0.29 0.772 .8712992 1.107723

2003 | .8966744 .0604999 -1.62 0.106 .7856028 1.02345

2004 | .8989003 .0632424 -1.51 0.130 .783114 1.031806

2005 | .7741268 .0552759 -3.59 0.000 .6730273 .890413

2006 | .7427885 .0543035 -4.07 0.000 .6436293 .8572243

2007 | .6901746 .0534942 -4.78 0.000 .5929033 .8034042

2008 | .6294943 .04826 -6.04 0.000 .5416699 .7315583

2009 | .5319033 .043605 -7.70 0.000 .4529516 .6246165

2010 | .5293863 .0426487 -7.89 0.000 .4520618 .6199371

2011 | .5446195 .0452452 -7.31 0.000 .4627838 .6409266

2012 | .5598502 .0478346 -6.79 0.000 .4735259 .6619116

2013 | .4996106 .0463056 -7.49 0.000 .4166194 .5991339

2014 | .4915164 .0476262 -7.33 0.000 .406499 .5943147

2015 | .5194778 .0544721 -6.25 0.000 .422971 .6380041

|

\_cons | .0000172 1.12e-06 -169.47 0.000 .0000152 .0000196

ln(hours) | 1 (exposure)

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

/lnalpha | -1.895086 .1358447 -2.161337 -1.628835

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

alpha | .1503054 .0204182 .1151711 .196158

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(est1 stored)

**. lrtest pois nbin, stats force**

Likelihood-ratio test LR chi2(4) = -294.84

(Assumption: nbin nested in pois) Prob > chi2 = 1.0000

Akaike's information criterion and Bayesian information criterion

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

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

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

nbin | 6,253 -8961.932 -8490.781 298 17577.56 19586.32

pois | 6,253 -9569.622 -8638.201 302 17880.4 19916.13

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

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

**. summ MR spcssv2\_yhat**

Variable | Obs Mean Std. Dev. Min Max

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

MR | 6,253 1.881017 3.268911 0 37

spcssv2\_yhat | 6,253 1.903485 2.908527 1.28e-11 43.25874