. // Model SP.C.PP.2

**. glm MR `subpart\_penpoints\_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\_pp\_1lag omitted because of collinearity

Iteration 0: log pseudolikelihood = -9238.8387

Iteration 1: log pseudolikelihood = -8641.4912

Iteration 2: log pseudolikelihood = -8635.5915

Iteration 3: log pseudolikelihood = -8635.4066

Iteration 4: log pseudolikelihood = -8635.3737

Iteration 5: log pseudolikelihood = -8635.3657

Iteration 6: log pseudolikelihood = -8635.364

Iteration 7: log pseudolikelihood = -8635.3635

Iteration 8: log pseudolikelihood = -8635.3635

Iteration 9: log pseudolikelihood = -8635.3634

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 5,925

Scale parameter = 1

Deviance = 7695.8612 (1/df) Deviance = 1.29888

Pearson = 8611.046814 (1/df) Pearson = 1.453341

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

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

AIC = 2.8669

Log pseudolikelihood = -8635.363447 BIC = -44093.48

(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\_pp\_1lag | .9992817 .0007688 -0.93 0.350 .9977759 1.00079

sp47\_42\_pp\_1lag | .9950648 .0032964 -1.49 0.135 .988625 1.001547

sp47\_44\_pp\_1lag | .9999368 .0010504 -0.06 0.952 .9978803 1.001998

sp48\_11\_pp\_1lag | 1.000405 .0006925 0.58 0.559 .9990486 1.001763

sp48\_24\_pp\_1lag | .9597357 .002749 -14.35 0.000 .9543628 .9651389

sp48\_25\_pp\_1lag | 1.001432 .0010938 1.31 0.190 .9992909 1.003579

sp48\_26\_pp\_1lag | 1.002419 .0009807 2.47 0.014 1.000498 1.004343

sp48\_27\_pp\_1lag | .999776 .0008404 -0.27 0.790 .9981302 1.001424

sp48\_28\_pp\_1lag | .9980311 .0014591 -1.35 0.178 .9951753 1.000895

sp48\_4\_pp\_1lag | 1.011464 .001764 6.54 0.000 1.008013 1.014928

sp48\_5\_pp\_1lag | 1.000148 .0019761 0.07 0.940 .9962823 1.004028

sp48\_6\_pp\_1lag | 1.000327 .0007458 0.44 0.661 .9988661 1.00179

sp48\_7\_pp\_1lag | 1.000659 .0005913 1.11 0.265 .9995005 1.001818

sp48\_8\_pp\_1lag | 1.000486 .0011503 0.42 0.673 .9982341 1.002743

sp71\_701\_pp\_1lag | 1.007531 .0054352 1.39 0.164 .9969345 1.01824

sp72\_503\_pp\_1lag | .9985257 .0008728 -1.69 0.091 .9968164 1.000238

sp72\_610\_pp\_1lag | 1.001972 .0042843 0.46 0.645 .9936104 1.010405

sp72\_620\_pp\_1lag | 1.013195 .0028048 4.74 0.000 1.007713 1.018708

sp72\_630\_pp\_1lag | 1.000184 .0001011 1.82 0.068 .9999863 1.000383

sp75\_100\_pp\_1lag | 1.000676 .0017374 0.39 0.697 .9972765 1.004087

sp75\_1001\_1\_pp\_1lag | 1.003775 .0027435 1.38 0.168 .9984124 1.009167

sp75\_1001\_pp\_1lag | 1.004778 .0040571 1.18 0.238 .9968575 1.012761

sp75\_1003\_1\_pp\_1lag | .9907677 .0025621 -3.59 0.000 .9857589 .9958021

sp75\_1100\_2\_pp\_1lag | 1.00023 .0000951 2.41 0.016 1.000043 1.000416

sp75\_1101\_20\_pp\_1lag | .9964843 .0026473 -1.33 0.185 .9913091 1.001686

sp75\_1102\_pp\_1lag | .9987926 .0007453 -1.62 0.105 .997333 1.000254

sp75\_1103\_4\_pp\_1lag | 1.000022 .0001621 0.14 0.892 .9997042 1.00034

sp75\_1104\_pp\_1lag | 1.000291 .0006579 0.44 0.659 .9990021 1.001581

sp75\_1106\_2\_pp\_1lag | 1.000356 .0005178 0.69 0.491 .9993418 1.001372

sp75\_1106\_3\_pp\_1lag | 1.000055 .0001941 0.28 0.776 .9996748 1.000436

sp75\_1106\_4\_pp\_1lag | 1.000155 .0015224 0.10 0.919 .9971756 1.003143

sp75\_1106\_5\_pp\_1lag | .9998867 .0007915 -0.14 0.886 .9983366 1.001439

sp75\_1106\_6\_pp\_1lag | .9958077 .0037834 -1.11 0.269 .98842 1.003251

sp75\_1106\_pp\_1lag | 1.001561 .0012544 1.25 0.213 .9991051 1.004022

sp75\_1107\_14\_pp\_1lag | 1.000347 .0031531 0.11 0.912 .9941859 1.006546

sp75\_1400\_1\_pp\_1lag | 1.000961 .0022494 0.43 0.669 .9965619 1.005379

sp75\_1400\_2\_pp\_1lag | .9993618 .0038296 -0.17 0.868 .991884 1.006896

sp75\_1400\_3\_pp\_1lag | 1.000297 .0006386 0.47 0.642 .999046 1.001549

sp75\_1400\_4\_pp\_1lag | .9995118 .0017507 -0.28 0.780 .9960864 1.002949

sp75\_1400\_pp\_1lag | 1.000089 .0008292 0.11 0.915 .9984647 1.001715

sp75\_1401\_1\_pp\_1lag | .9983554 .0090927 -0.18 0.857 .9806921 1.016337

sp75\_1401\_pp\_1lag | 1.000059 .0040233 0.01 0.988 .992205 1.007976

sp75\_1403\_10\_pp\_1lag | 1.000291 .0002166 1.34 0.179 .9998664 1.000716

sp75\_1403\_11\_pp\_1lag | .9980302 .0037684 -0.52 0.602 .9906716 1.005443

sp75\_1403\_3\_pp\_1lag | .993304 .0044126 -1.51 0.130 .9846929 1.00199

sp75\_1403\_4\_pp\_1lag | 1.007027 .0029566 2.39 0.017 1.001249 1.012839

sp75\_1403\_5\_pp\_1lag | .9997304 .0001401 -1.92 0.054 .9994559 1.000005

sp75\_1403\_6\_pp\_1lag | 1.000084 .0001038 0.81 0.417 .9998809 1.000288

sp75\_1403\_7\_pp\_1lag | .9995325 .0006698 -0.70 0.485 .9982205 1.000846

sp75\_1403\_8\_pp\_1lag | .9998516 .0001704 -0.87 0.384 .9995178 1.000186

sp75\_1403\_9\_pp\_1lag | .9987011 .0006436 -2.02 0.044 .9974404 .9999633

sp75\_1404\_1\_pp\_1lag | .9923077 .005444 -1.41 0.159 .9816949 1.003035

sp75\_1404\_pp\_1lag | .9921354 .0036386 -2.15 0.031 .9850296 .9992926

sp75\_1405\_1\_pp\_1lag | 1.002413 .0023091 1.05 0.295 .9978978 1.006949

sp75\_1405\_pp\_1lag | .9999663 .0002304 -0.15 0.884 .9995148 1.000418

sp75\_1431\_pp\_1lag | 1.002733 .002528 1.08 0.279 .99779 1.0077

sp75\_1432\_pp\_1lag | .9962902 .0018038 -2.05 0.040 .992761 .999832

sp75\_1433\_pp\_1lag | .999247 .001627 -0.46 0.644 .9960632 1.002441

sp75\_1434\_pp\_1lag | .9988041 .0013723 -0.87 0.384 .9961181 1.001497

sp75\_1435\_pp\_1lag | 1.000657 .0046371 0.14 0.887 .9916095 1.009787

sp75\_1437\_pp\_1lag | 1.006322 .0036485 1.74 0.082 .9991964 1.013498

sp75\_150\_pp\_1lag | 1.007508 .0022375 3.37 0.001 1.003132 1.011903

sp75\_151\_pp\_1lag | .9976726 .0032904 -0.71 0.480 .9912444 1.004143

sp75\_153\_pp\_1lag | 1.003402 .0019863 1.72 0.086 .9995167 1.007303

sp75\_156\_pp\_1lag | 1.003656 .0032948 1.11 0.266 .9972186 1.010134

sp75\_160\_pp\_1lag | 1.005571 .003952 1.41 0.157 .9978548 1.013346

sp75\_1600\_2\_pp\_1lag | .9994452 .0003089 -1.80 0.073 .9988399 1.000051

sp75\_1712\_10\_pp\_1lag | .9982421 .0013563 -1.29 0.195 .9955875 1.000904

sp75\_1712\_6\_pp\_1lag | 1.00004 .0006454 0.06 0.951 .9987759 1.001306

sp75\_1720\_pp\_1lag | 1.000449 .0004884 0.92 0.358 .9994923 1.001407

sp75\_1721\_pp\_1lag | 1.008793 .0086663 1.02 0.308 .9919493 1.025922

sp75\_1725\_pp\_1lag | .9999775 .0000516 -0.44 0.662 .9998764 1.000079

sp75\_1726\_pp\_1lag | 1.002101 .0013163 1.60 0.110 .9995243 1.004684

sp75\_1727\_pp\_1lag | .9917793 .0133707 -0.61 0.540 .9659164 1.018335

sp75\_1728\_pp\_1lag | 1.001703 .0027128 0.63 0.530 .9964 1.007034

sp75\_1729\_pp\_1lag | 1.001898 .001907 1.00 0.319 .9981673 1.005643

sp75\_1730\_pp\_1lag | 1.001721 .0017721 0.97 0.331 .9982534 1.0052

sp75\_1731\_pp\_1lag | .9999824 .0000352 -0.50 0.617 .9999134 1.000051

sp75\_1903\_pp\_1lag | .9999526 .0005755 -0.08 0.934 .9988254 1.001081

sp75\_1909\_pp\_1lag | 1.000051 .0000851 0.60 0.549 .9998842 1.000218

sp75\_1910\_pp\_1lag | .9997932 .0001304 -1.59 0.113 .9995377 1.000049

sp75\_1911\_pp\_1lag | .9999648 .0001746 -0.20 0.840 .9996226 1.000307

sp75\_1912\_pp\_1lag | .9992553 .0012111 -0.61 0.539 .9968845 1.001632

sp75\_1913\_pp\_1lag | 1.002115 .0017848 1.19 0.236 .9986225 1.005619

sp75\_1914\_pp\_1lag | 1.000293 .0001197 2.45 0.014 1.000058 1.000527

sp75\_1915\_pp\_1lag | 1.001423 .0017078 0.83 0.404 .998081 1.004776

sp75\_202\_pp\_1lag | 1.000004 .0000293 0.13 0.900 .9999463 1.000061

sp75\_208\_pp\_1lag | 1.000218 .0002343 0.93 0.351 .9997593 1.000678

sp75\_211\_pp\_1lag | 1.000364 .0001918 1.90 0.058 .9999882 1.00074

sp75\_212\_pp\_1lag | .9991681 .0005309 -1.57 0.117 .9981281 1.000209

sp75\_214\_pp\_1lag | 1.000115 .000495 0.23 0.816 .9991454 1.001086

sp75\_312\_pp\_1lag | .999527 .0005123 -0.92 0.356 .9985234 1.000532

sp75\_320\_pp\_1lag | .9995022 .0003228 -1.54 0.123 .9988697 1.000135

sp75\_324\_pp\_1lag | .9999627 .0007387 -0.05 0.960 .9985159 1.001412

sp75\_337\_pp\_1lag | 1.000161 .0003526 0.46 0.649 .9994699 1.000852

sp75\_340\_pp\_1lag | 1.000334 .0001625 2.06 0.040 1.000016 1.000652

sp75\_341\_pp\_1lag | .988944 .0065463 -1.68 0.093 .9761964 1.001858

sp75\_342\_pp\_1lag | 1.00007 .0000857 0.82 0.413 .9999022 1.000238

sp75\_344\_pp\_1lag | .9993495 .0012687 -0.51 0.608 .996866 1.001839

sp75\_352\_pp\_1lag | .998952 .0006893 -1.52 0.129 .997602 1.000304

sp75\_382\_pp\_1lag | 1.000615 .0006903 0.89 0.372 .9992634 1.001969

sp75\_503\_pp\_1lag | .9999296 .000043 -1.64 0.101 .9998454 1.000014

sp75\_504\_pp\_1lag | 1.00126 .0014413 0.87 0.382 .9984393 1.004089

sp75\_505\_pp\_1lag | 1.000133 .0027169 0.05 0.961 .9948217 1.005472

sp75\_506\_1\_pp\_1lag | 1.002633 .0015045 1.75 0.080 .9996889 1.005586

sp75\_506\_pp\_1lag | .9984803 .0010151 -1.50 0.135 .9964927 1.000472

sp75\_507\_pp\_1lag | .9995678 .0006563 -0.66 0.510 .9982823 1.000855

sp75\_511\_1\_pp\_1lag | .9769047 .0057645 -3.96 0.000 .9656716 .9882684

sp75\_511\_pp\_1lag | 1.000828 .0007757 1.07 0.286 .9993088 1.002349

sp75\_512\_1\_pp\_1lag | 1.00203 .0063504 0.32 0.749 .9896604 1.014554

sp75\_512\_2\_pp\_1lag | 1.000513 .0001979 2.59 0.009 1.000125 1.000901

sp75\_512\_pp\_1lag | 1.00003 .000056 0.54 0.588 .9999206 1.00014

sp75\_513\_1\_pp\_1lag | 1.000167 .0020532 0.08 0.935 .996151 1.004199

sp75\_513\_pp\_1lag | .9995563 .000803 -0.55 0.581 .9979837 1.001131

sp75\_514\_pp\_1lag | 1.000215 .0002042 1.05 0.292 .9998148 1.000615

sp75\_515\_pp\_1lag | .9995033 .0001456 -3.41 0.001 .9992181 .9997887

sp75\_516\_1\_pp\_1lag | .9973718 .0021716 -1.21 0.227 .9931245 1.001637

sp75\_516\_2\_pp\_1lag | 1.000139 .0004002 0.35 0.728 .9993551 1.000924

sp75\_516\_pp\_1lag | 1.000089 .0002568 0.35 0.729 .9995859 1.000592

sp75\_517\_1\_pp\_1lag | 1.000841 .0027029 0.31 0.756 .9955577 1.006153

sp75\_517\_pp\_1lag | .9999969 .0000465 -0.07 0.946 .9999058 1.000088

sp75\_518\_1\_pp\_1lag | 1.000204 .0002678 0.76 0.447 .9996791 1.000729

sp75\_518\_pp\_1lag | .9999725 .000169 -0.16 0.871 .9996414 1.000304

sp75\_519\_pp\_1lag | 1.000049 .0034676 0.01 0.989 .9932755 1.006868

sp75\_520\_pp\_1lag | 1.000551 .000421 1.31 0.190 .9997265 1.001377

sp75\_523\_1\_pp\_1lag | .9989732 .0006222 -1.65 0.099 .9977545 1.000193

sp75\_523\_2\_pp\_1lag | 1.000307 .0004147 0.74 0.459 .9994948 1.00112

sp75\_523\_pp\_1lag | .99897 .000539 -1.91 0.056 .9979142 1.000027

sp75\_600\_1\_pp\_1lag | .9986192 .0018579 -0.74 0.458 .9949845 1.002267

sp75\_600\_pp\_1lag | 1.000759 .0037634 0.20 0.840 .9934096 1.008162

sp75\_601\_1\_pp\_1lag | .9997861 .0001935 -1.10 0.269 .9994069 1.000166

sp75\_601\_2\_pp\_1lag | .9955774 .0038885 -1.13 0.256 .9879852 1.003228

sp75\_601\_3\_pp\_1lag | .9964144 .0022999 -1.56 0.120 .9919168 1.000932

sp75\_601\_pp\_1lag | 1.000603 .0002631 2.29 0.022 1.000088 1.001119

sp75\_602\_pp\_1lag | 1.000057 .0006654 0.09 0.932 .9987534 1.001362

sp75\_603\_pp\_1lag | .9999618 .0007654 -0.05 0.960 .9984628 1.001463

sp75\_604\_pp\_1lag | 1.000181 .0000709 2.55 0.011 1.000042 1.00032

sp75\_605\_pp\_1lag | 1.000414 .0003152 1.31 0.189 .9997966 1.001032

sp75\_606\_pp\_1lag | .9999503 .0001151 -0.43 0.666 .9997247 1.000176

sp75\_607\_pp\_1lag | 1.000129 .0006894 0.19 0.852 .9987783 1.001481

sp75\_700\_1\_pp\_1lag | .9960503 .003532 -1.12 0.264 .9891518 1.002997

sp75\_700\_pp\_1lag | .9984582 .0007676 -2.01 0.045 .9969549 .9999638

sp75\_701\_1\_pp\_1lag | .9993205 .0008051 -0.84 0.399 .9977437 1.0009

sp75\_701\_2\_pp\_1lag | 1.001115 .0008361 1.33 0.182 .9994776 1.002755

sp75\_701\_3\_pp\_1lag | 1.003339 .0008433 3.97 0.000 1.001687 1.004993

sp75\_701\_4\_pp\_1lag | 1.00502 .0025067 2.01 0.045 1.000119 1.009945

sp75\_701\_5\_pp\_1lag | .9997789 .0013092 -0.17 0.866 .9972161 1.002348

sp75\_701\_pp\_1lag | 1.000107 .0001845 0.58 0.563 .9997451 1.000468

sp75\_702\_1\_pp\_1lag | 1.002723 .0021853 1.25 0.212 .9984486 1.007015

sp75\_702\_pp\_1lag | .9909894 .0096517 -0.93 0.353 .9722518 1.010088

sp75\_703\_1\_pp\_1lag | .9878231 .0064422 -1.88 0.060 .9752769 1.000531

sp75\_703\_2\_pp\_1lag | .9975007 .0032381 -0.77 0.441 .9911742 1.003868

sp75\_703\_3\_pp\_1lag | 1.000741 .0009726 0.76 0.446 .9988367 1.002649

sp75\_703\_4\_pp\_1lag | .8390246 .0110609 -13.31 0.000 .8176234 .8609861

sp75\_703\_pp\_1lag | 1.000445 .0004417 1.01 0.313 .9995799 1.001311

sp75\_704\_pp\_1lag | .9957895 .0033562 -1.25 0.211 .9892331 1.002389

sp75\_705\_1\_pp\_1lag | .997477 .0013276 -1.90 0.058 .9948784 1.000082

sp75\_705\_3\_pp\_1lag | 1.015795 .0050866 3.13 0.002 1.005874 1.025814

sp75\_705\_8\_pp\_1lag | 1.00062 .0031372 0.20 0.843 .9944899 1.006788

sp75\_705\_pp\_1lag | 1.003724 .0026094 1.43 0.153 .9986228 1.008852

sp75\_706\_pp\_1lag | 1.00132 .0009316 1.42 0.156 .9994962 1.003148

sp75\_800\_2\_pp\_1lag | .5950509 .0220901 -13.98 0.000 .5532927 .6399606

sp75\_800\_3\_pp\_1lag | .9984733 .0014822 -1.03 0.303 .9955724 1.001383

sp75\_800\_4\_pp\_1lag | 1.001178 .0014604 0.81 0.419 .9983203 1.004045

sp75\_800\_pp\_1lag | .9987197 .0008895 -1.44 0.150 .9969778 1.000465

sp75\_801\_pp\_1lag | .9974695 .0028421 -0.89 0.374 .9919145 1.003056

sp75\_802\_pp\_1lag | 1.000663 .002257 0.29 0.769 .9962496 1.005097

sp75\_803\_2\_pp\_1lag | 1.00053 .0038771 0.14 0.891 .9929597 1.008158

sp75\_803\_pp\_1lag | 1.000656 .0011325 0.58 0.562 .9984389 1.002878

sp75\_804\_pp\_1lag | .9998985 .0005483 -0.19 0.853 .9988245 1.000974

sp75\_805\_pp\_1lag | 1.002472 .0017725 1.40 0.163 .9990037 1.005952

sp75\_806\_pp\_1lag | 1.004295 .0061693 0.70 0.485 .9922757 1.016459

sp75\_807\_pp\_1lag | 1.000252 .0001435 1.76 0.079 .9999711 1.000533

sp75\_808\_pp\_1lag | .9987738 .0009417 -1.30 0.193 .9969297 1.000621

sp75\_809\_pp\_1lag | .9999956 .0005377 -0.01 0.993 .9989423 1.00105

sp75\_810\_pp\_1lag | 1.000819 .0006982 1.17 0.240 .9994519 1.002189

sp75\_811\_pp\_1lag | 1.000411 .000535 0.77 0.442 .9993634 1.001461

sp75\_812\_pp\_1lag | 1.000996 .0015725 0.63 0.526 .9979191 1.004083

sp75\_814\_pp\_1lag | .9997863 .0016721 -0.13 0.898 .9965145 1.003069

sp75\_815\_pp\_1lag | 1.004493 .0011099 4.06 0.000 1.00232 1.006671

sp75\_816\_pp\_1lag | .9996472 .0003938 -0.90 0.370 .9988757 1.000419

sp75\_818\_pp\_1lag | 1.000783 .0017176 0.46 0.648 .9974222 1.004155

sp75\_820\_pp\_1lag | 1.003332 .0011333 2.95 0.003 1.001114 1.005556

sp75\_821\_pp\_1lag | 1.000445 .000608 0.73 0.464 .9992544 1.001638

sp75\_825\_pp\_1lag | 1.00188 .0013968 1.35 0.178 .999146 1.004621

sp75\_827\_pp\_1lag | 1.004067 .0016466 2.47 0.013 1.000845 1.007299

sp75\_831\_pp\_1lag | .992507 .0029439 -2.54 0.011 .9867538 .9982938

sp75\_832\_pp\_1lag | .9909599 .0127735 -0.70 0.481 .966238 1.016314

sp75\_834\_pp\_1lag | .5284499 .0323951 -10.40 0.000 .4686227 .5959149

sp75\_900\_2\_pp\_1lag | .9993193 .0021503 -0.32 0.752 .9951136 1.003543

sp75\_900\_3\_pp\_1lag | 1.00095 .0011338 0.84 0.402 .9987306 1.003175

sp75\_900\_4\_pp\_1lag | .9993127 .000359 -1.91 0.056 .9986094 1.000017

sp75\_900\_pp\_1lag | .9997461 .0003412 -0.74 0.457 .9990776 1.000415

sp75\_901\_pp\_1lag | .9988541 .0013737 -0.83 0.404 .9961653 1.00155

sp75\_902\_1\_pp\_1lag | 1.000767 .0041537 0.18 0.853 .9926591 1.008941

sp75\_902\_2\_pp\_1lag | 1.000376 .0009634 0.39 0.696 .9984895 1.002266

sp75\_902\_4\_pp\_1lag | 1.000361 .0007137 0.51 0.613 .9989632 1.001761

sp75\_902\_pp\_1lag | 1.000588 .000343 1.72 0.086 .9999164 1.001261

sp75\_903\_pp\_1lag | 1.000116 .0005039 0.23 0.818 .9991288 1.001104

sp75\_904\_pp\_1lag | 1.000073 .0001538 0.48 0.634 .9997718 1.000375

sp75\_905\_pp\_1lag | 1.002052 .0055431 0.37 0.711 .9912469 1.012976

sp75\_907\_pp\_1lag | 1.000414 .0010858 0.38 0.703 .998288 1.002544

sp77\_103\_pp\_1lag | .9988341 .0018781 -0.62 0.535 .9951599 1.002522

sp77\_104\_pp\_1lag | .990967 .0056447 -1.59 0.111 .9799651 1.002092

sp77\_1103\_pp\_1lag | .9996846 .0003513 -0.90 0.369 .9989963 1.000373

sp77\_1104\_pp\_1lag | 1.000154 .0001342 1.15 0.250 .9998913 1.000417

sp77\_1106\_pp\_1lag | 1.001737 .0085802 0.20 0.839 .9850601 1.018696

sp77\_1111\_pp\_1lag | .995504 .0033709 -1.33 0.183 .9889191 1.002133

sp77\_1112\_pp\_1lag | .9997793 .0009634 -0.23 0.819 .9978928 1.001669

sp77\_1403\_pp\_1lag | 1.000982 .001615 0.61 0.543 .9978213 1.004152

sp77\_1432\_pp\_1lag | .9992196 .003942 -0.20 0.843 .9915232 1.006976

sp77\_1433\_pp\_1lag | .9972335 .0021011 -1.31 0.189 .9931239 1.00136

sp77\_1434\_pp\_1lag | 1.002385 .0020516 1.16 0.244 .9983719 1.006414

sp77\_1437\_pp\_1lag | .99714 .0020874 -1.37 0.171 .9930572 1.00124

sp77\_1438\_pp\_1lag | .9922517 .0100388 -0.77 0.442 .9727699 1.012124

sp77\_1605\_pp\_1lag | .9998349 .0001537 -1.07 0.283 .9995337 1.000136

sp77\_1606\_pp\_1lag | 1.000449 .0002288 1.96 0.050 1.000001 1.000898

sp77\_1710\_pp\_1lag | .9994257 .0003656 -1.57 0.116 .9987094 1.000142

sp77\_1802\_pp\_1lag | .998371 .0035917 -0.45 0.650 .9913561 1.005435

sp77\_1906\_pp\_1lag | 1.005755 .0042606 1.35 0.176 .9974387 1.01414

sp77\_1915\_pp\_1lag | 1.002439 .0015416 1.58 0.113 .9994223 1.005465

sp77\_1916\_pp\_1lag | 1.003434 .0019162 1.80 0.073 .9996853 1.007197

sp77\_200\_pp\_1lag | .9999045 .0001789 -0.53 0.593 .9995539 1.000255

sp77\_202\_pp\_1lag | .999227 .0002607 -2.96 0.003 .9987161 .9997381

sp77\_203\_pp\_1lag | 1.000306 .00225 0.14 0.892 .9959053 1.004725

sp77\_204\_pp\_1lag | .999464 .0004038 -1.33 0.185 .9986729 1.000256

sp77\_205\_pp\_1lag | 1.000115 .0001038 1.10 0.270 .9999111 1.000318

sp77\_206\_pp\_1lag | 1.000694 .0007979 0.87 0.385 .9991309 1.002259

sp77\_207\_pp\_1lag | 1.000665 .0005686 1.17 0.242 .9995516 1.00178

sp77\_208\_pp\_1lag | 1.000297 .0002605 1.14 0.254 .9997866 1.000808

sp77\_210\_pp\_1lag | .9992239 .0010649 -0.73 0.466 .9971388 1.001313

sp77\_216\_pp\_1lag | 1.000407 .0004945 0.82 0.411 .9994379 1.001376

sp77\_305\_pp\_1lag | 1.030031 .0096929 3.14 0.002 1.011208 1.049206

sp77\_309\_pp\_1lag | 1.008358 .0046517 1.80 0.071 .9992819 1.017516

sp77\_314\_pp\_1lag | .9833744 .0103885 -1.59 0.113 .9632227 1.003948

sp77\_315\_pp\_1lag | .9929624 .0080415 -0.87 0.383 .9773258 1.008849

sp77\_400\_pp\_1lag | 1.000174 .0001356 1.28 0.199 .9999083 1.00044

sp77\_401\_pp\_1lag | .9994961 .0009723 -0.52 0.604 .9975922 1.001404

sp77\_402\_pp\_1lag | .9994561 .000777 -0.70 0.484 .9979344 1.00098

sp77\_403\_1\_pp\_1lag | 1.001846 .0010597 1.74 0.081 .9997713 1.003925

sp77\_403\_2\_pp\_1lag | 1.010878 .0074926 1.46 0.144 .9962987 1.02567

sp77\_403\_pp\_1lag | 1.004909 .0029631 1.66 0.097 .9991179 1.010733

sp77\_404\_pp\_1lag | .9998604 .0001327 -1.05 0.293 .9996003 1.000121

sp77\_405\_pp\_1lag | 1.000273 .0014425 0.19 0.850 .9974496 1.003104

sp77\_408\_pp\_1lag | .9986638 .0014646 -0.91 0.362 .9957974 1.001538

sp77\_409\_pp\_1lag | .9909735 .0060982 -1.47 0.141 .9790929 1.002998

sp77\_410\_pp\_1lag | 1.000358 .0002504 1.43 0.153 .9998668 1.000849

sp77\_411\_pp\_1lag | .9942339 .0054077 -1.06 0.288 .9836912 1.00489

sp77\_412\_pp\_1lag | .9999814 .0011305 -0.02 0.987 .997768 1.0022

sp77\_413\_pp\_1lag | .9903279 .0021512 -4.47 0.000 .9861206 .9945531

sp77\_500\_pp\_1lag | .9988745 .0017215 -0.65 0.514 .9955061 1.002254

sp77\_501\_pp\_1lag | .9993084 .0012574 -0.55 0.582 .9968469 1.001776

sp77\_502\_1\_pp\_1lag | .9979247 .0049013 -0.42 0.672 .9883644 1.007578

sp77\_502\_2\_pp\_1lag | 1.00034 .0008348 0.41 0.684 .9987054 1.001978

sp77\_502\_pp\_1lag | .9999234 .0001483 -0.52 0.606 .9996329 1.000214

sp77\_503\_1\_pp\_1lag | 1.000932 .0033763 0.28 0.782 .9943368 1.007572

sp77\_503\_pp\_1lag | 1.002794 .0021962 1.27 0.203 .9984992 1.007108

sp77\_504\_pp\_1lag | .999447 .0006513 -0.85 0.396 .9981713 1.000724

sp77\_505\_pp\_1lag | 1.000113 .0003638 0.31 0.755 .9994007 1.000827

sp77\_506\_1\_pp\_1lag | 1.000244 .0004989 0.49 0.625 .9992663 1.001222

sp77\_506\_pp\_1lag | .99998 .0007814 -0.03 0.980 .9984496 1.001513

sp77\_507\_pp\_1lag | 1.001743 .0016054 1.09 0.277 .9986012 1.004894

sp77\_508\_1\_pp\_1lag | .9887061 .0037555 -2.99 0.003 .9813727 .9960942

sp77\_508\_pp\_1lag | .9998097 .0016046 -0.12 0.906 .9966698 1.00296

sp77\_509\_pp\_1lag | .9997217 .0007437 -0.37 0.708 .9982651 1.00118

sp77\_510\_pp\_1lag | .9969191 .0025992 -1.18 0.237 .9918378 1.002027

sp77\_511\_pp\_1lag | .9961727 .0030295 -1.26 0.207 .9902526 1.002128

sp77\_512\_pp\_1lag | 1.000005 .0002953 0.02 0.987 .9994264 1.000584

sp77\_513\_pp\_1lag | 1.000209 .0005265 0.40 0.692 .9991773 1.001241

sp77\_514\_pp\_1lag | 1.000891 .0034138 0.26 0.794 .9942224 1.007604

sp77\_515\_pp\_1lag | .9938125 .0129579 -0.48 0.634 .9687372 1.019537

sp77\_516\_pp\_1lag | .9996659 .0001688 -1.98 0.048 .9993351 .9999968

sp77\_600\_pp\_1lag | 1.003242 .0023679 1.37 0.170 .998612 1.007894

sp77\_601\_pp\_1lag | 1.002526 .0022975 1.10 0.271 .9980327 1.007039

sp77\_602\_pp\_1lag | 1.002162 .0024187 0.89 0.371 .9974328 1.006914

sp77\_603\_pp\_1lag | 1.01492 .0026296 5.72 0.000 1.009779 1.020087

sp77\_604\_pp\_1lag | .9997354 .0016217 -0.16 0.870 .9965619 1.002919

sp77\_605\_pp\_1lag | .9768295 .0110692 -2.07 0.039 .9553735 .9987675

sp77\_606\_1\_pp\_1lag | .9933249 .0042938 -1.55 0.121 .9849448 1.001776

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

sp77\_700\_1\_pp\_1lag | 1.004585 .0027145 1.69 0.090 .9992787 1.009919

sp77\_700\_pp\_1lag | .997637 .0020309 -1.16 0.245 .9936645 1.001625

sp77\_701\_1\_pp\_1lag | 1.003346 .00218 1.54 0.124 .9990823 1.007628

sp77\_701\_2\_pp\_1lag | .9983943 .002131 -0.75 0.452 .9942264 1.00258

sp77\_701\_3\_pp\_1lag | 1.004451 .0029214 1.53 0.127 .998741 1.010193

sp77\_701\_4\_pp\_1lag | 1.000228 .0025773 0.09 0.930 .995189 1.005292

sp77\_701\_pp\_1lag | .9991623 .0005593 -1.50 0.134 .9980668 1.000259

sp77\_703\_pp\_1lag | .9955691 .00527 -0.84 0.402 .9852936 1.005952

sp77\_704\_1\_pp\_1lag | .9989744 .0010657 -0.96 0.336 .9968879 1.001065

sp77\_704\_8\_pp\_1lag | .9970861 .0029971 -0.97 0.332 .9912291 1.002978

sp77\_704\_9\_pp\_1lag | .9921003 .0054145 -1.45 0.146 .9815446 1.002769

sp77\_704\_pp\_1lag | .9962107 .0031805 -1.19 0.234 .9899966 1.002464

sp77\_705\_pp\_1lag | 1.001063 .0009866 1.08 0.281 .9991312 1.002998

sp77\_800\_1\_pp\_1lag | 1.000204 .0031012 0.07 0.948 .9941438 1.0063

sp77\_800\_2\_pp\_1lag | 1.002548 .0019256 1.32 0.185 .9987811 1.006329

sp77\_800\_pp\_1lag | 1.006006 .0036615 1.65 0.100 .9988553 1.013208

sp77\_801\_pp\_1lag | .9976318 .0075411 -0.31 0.754 .9829605 1.012522

sp77\_802\_pp\_1lag | .9946891 .0044976 -1.18 0.239 .985913 1.003543

sp77\_803\_pp\_1lag | .9999776 .0041391 -0.01 0.996 .9918979 1.008123

sp77\_804\_pp\_1lag | .6173203 .0206267 -14.44 0.000 .5781881 .659101

sp77\_805\_pp\_1lag | .996274 .0038479 -0.97 0.334 .9887608 1.003844

sp77\_807\_1\_pp\_1lag | .9989815 .0030631 -0.33 0.740 .9929959 1.005003

sp77\_807\_2\_pp\_1lag | 1.000984 .0027894 0.35 0.724 .9955317 1.006466

sp77\_807\_3\_pp\_1lag | 1.001589 .0020477 0.78 0.437 .9975837 1.00561

sp77\_807\_pp\_1lag | .9983626 .0024519 -0.67 0.505 .9935686 1.00318

sp77\_808\_pp\_1lag | 1.004655 .0035127 1.33 0.184 .9977942 1.011564

sp77\_809\_pp\_1lag | .9992041 .0009242 -0.86 0.389 .9973943 1.001017

sp77\_810\_pp\_1lag | 1.003192 .0021942 1.46 0.145 .9989011 1.007502

sp77\_900\_1\_pp\_1lag | 1.006001 .0033903 1.78 0.076 .9993776 1.012668

sp77\_900\_2\_pp\_1lag | 1.003649 .0017278 2.12 0.034 1.000268 1.007041

sp77\_900\_pp\_1lag | .9989327 .0025041 -0.43 0.670 .9940368 1.003853

sp77\_901\_1\_pp\_1lag | .9996169 .0048716 -0.08 0.937 .9901143 1.009211

sp77\_901\_pp\_1lag | 1.001382 .0016739 0.83 0.409 .9981067 1.004668

sp77\_902\_2\_pp\_1lag | 1.001816 .0028349 0.64 0.521 .9962753 1.007388

sp77\_902\_3\_pp\_1lag | .9940076 .005651 -1.06 0.290 .9829933 1.005145

sp77\_902\_pp\_1lag | 1.000498 .0018395 0.27 0.787 .9968992 1.00411

sp77\_903\_pp\_1lag | .9987087 .0023936 -0.54 0.590 .9940284 1.003411

sp77\_904\_pp\_1lag | .9998667 .0004942 -0.27 0.787 .9988985 1.000836

mine\_time | .9946795 .0070654 -0.75 0.453 .9809275 1.008624

onsite\_insp\_hours | .9998679 .0000517 -2.56 0.011 .9997666 .9999692

|

state |

1 | 1.121346 .0864427 1.49 0.137 .9640998 1.30424

2 | 1.987496 .1703163 8.02 0.000 1.68021 2.350981

3 | .706811 .118059 -2.08 0.038 .5094794 .9805731

4 | 1.093691 .0851338 1.15 0.250 .9389369 1.273952

5 | .908261 .1309619 -0.67 0.505 .6846619 1.204884

6 | .9941159 .0591545 -0.10 0.921 .8846806 1.117088

7 | 1.062403 .2796806 0.23 0.818 .6341736 1.779797

8 | .8904475 .1002991 -1.03 0.303 .714052 1.110419

9 | .7870079 .0538057 -3.50 0.000 .6883109 .899857

10 | 1.211276 .1212718 1.91 0.056 .9954553 1.473889

11 | .8974833 .2359987 -0.41 0.681 .5360407 1.50264

12 | .9940873 .0949528 -0.06 0.950 .8243655 1.198752

13 | 1.322772 .2027018 1.83 0.068 .9795958 1.786172

14 | .6287129 .0797599 -3.66 0.000 .4903058 .8061905

15 | .6905108 .050622 -5.05 0.000 .5980921 .7972102

17 | 1.232429 .1708668 1.51 0.132 .9391814 1.61724

|

time |

2000 | 1.087536 .0656738 1.39 0.165 .966143 1.224181

2002 | .9774457 .05843 -0.38 0.703 .8693793 1.098945

2003 | .8850032 .0564482 -1.92 0.055 .7810029 1.002852

2004 | .9126179 .0602251 -1.39 0.166 .8018937 1.038631

2005 | .7884647 .0525712 -3.56 0.000 .6918758 .898538

2006 | .7663195 .0565166 -3.61 0.000 .6631827 .8854959

2007 | .678306 .05354 -4.92 0.000 .5810837 .7917948

2008 | .5823581 .0482466 -6.53 0.000 .4950747 .6850299

2009 | .5314642 .0471581 -7.12 0.000 .4466269 .6324165

2010 | .4979406 .0440188 -7.89 0.000 .418726 .5921412

2011 | .5078348 .0447131 -7.70 0.000 .4273435 .6034868

2012 | .5535361 .0454939 -7.20 0.000 .4711807 .6502859

2013 | .501596 .0470144 -7.36 0.000 .4174181 .6027496

2014 | .4481886 .0436561 -8.24 0.000 .3702961 .5424661

2015 | .4653859 .051605 -6.90 0.000 .3744781 .5783622

|

\_cons | .0000169 1.04e-06 -178.77 0.000 .000015 .000019

ln(hours) | 1 (exposure)

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

**. estat gof**

Deviance goodness-of-fit = 7695.861

Prob > chi2(5925) = 0.0000

Pearson goodness-of-fit = 8611.022

Prob > chi2(5925) = 0.0000

**. glm MR `subpart\_penpoints\_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\_pp\_1lag omitted because of collinearity

Iteration 0: log pseudolikelihood = -9174.9831

Iteration 1: log pseudolikelihood = -9014.5278

Iteration 2: log pseudolikelihood = -9012.8257

Iteration 3: log pseudolikelihood = -9012.7076

Iteration 4: log pseudolikelihood = -9012.6986

Iteration 5: log pseudolikelihood = -9012.6967

Iteration 6: log pseudolikelihood = -9012.6964

Iteration 7: log pseudolikelihood = -9012.6963

Iteration 8: log pseudolikelihood = -9012.6963

Generalized linear models No. of obs = 6,253

Optimization : ML Residual df = 5,924

Scale parameter = 1

Deviance = 3711.630239 (1/df) Deviance = .6265412

Pearson = 4003.520719 (1/df) Pearson = .6758138

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

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

AIC = 2.987909

Log pseudolikelihood = -9012.696294 BIC = -48068.97

(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\_pp\_1lag | .9987898 .0008925 -1.36 0.175 .997042 1.000541

sp47\_42\_pp\_1lag | .993489 .0033684 -1.93 0.054 .9869088 1.000113

sp47\_44\_pp\_1lag | 1.001301 .0013566 0.96 0.337 .998646 1.003964

sp48\_11\_pp\_1lag | 1.001531 .0009207 1.66 0.096 .9997285 1.003337

sp48\_24\_pp\_1lag | .9618713 .0027543 -13.58 0.000 .9564881 .9672848

sp48\_25\_pp\_1lag | .9997458 .0015661 -0.16 0.871 .996681 1.00282

sp48\_26\_pp\_1lag | 1.0017 .0010269 1.66 0.098 .9996889 1.003714

sp48\_27\_pp\_1lag | 1.000193 .0009672 0.20 0.842 .9982989 1.00209

sp48\_28\_pp\_1lag | .9976459 .0019624 -1.20 0.231 .993807 1.0015

sp48\_4\_pp\_1lag | 1.009946 .0021087 4.74 0.000 1.005822 1.014088

sp48\_5\_pp\_1lag | 1.000073 .0027677 0.03 0.979 .9946631 1.005512

sp48\_6\_pp\_1lag | 1.000261 .0008596 0.30 0.762 .9985774 1.001947

sp48\_7\_pp\_1lag | 1.000515 .0008042 0.64 0.522 .99894 1.002092

sp48\_8\_pp\_1lag | 1.001048 .0015767 0.67 0.506 .9979625 1.004143

sp71\_701\_pp\_1lag | 1.000502 .0068417 0.07 0.942 .9871818 1.014002

sp72\_503\_pp\_1lag | .9985269 .000917 -1.61 0.108 .9967313 1.000326

sp72\_610\_pp\_1lag | 1.005559 .0045501 1.23 0.221 .9966801 1.014517

sp72\_620\_pp\_1lag | 1.010562 .0035574 2.98 0.003 1.003614 1.017559

sp72\_630\_pp\_1lag | 1.000209 .0001263 1.66 0.098 .9999617 1.000457

sp75\_100\_pp\_1lag | 1.000561 .0022799 0.25 0.805 .9961027 1.00504

sp75\_1001\_1\_pp\_1lag | 1.000952 .0027461 0.35 0.729 .9955844 1.006349

sp75\_1001\_pp\_1lag | 1.00166 .0061989 0.27 0.789 .9895836 1.013884

sp75\_1003\_1\_pp\_1lag | .9922435 .0036611 -2.11 0.035 .9850937 .9994452

sp75\_1100\_2\_pp\_1lag | 1.000195 .0001174 1.66 0.096 .9999652 1.000425

sp75\_1101\_20\_pp\_1lag | .9988276 .0018929 -0.62 0.536 .9951245 1.002545

sp75\_1102\_pp\_1lag | .9993692 .0008766 -0.72 0.472 .9976526 1.001089

sp75\_1103\_4\_pp\_1lag | 1.000025 .0001891 0.13 0.895 .9996545 1.000396

sp75\_1104\_pp\_1lag | 1.000378 .0007327 0.52 0.606 .9989428 1.001815

sp75\_1106\_2\_pp\_1lag | .9996304 .000667 -0.55 0.580 .9983239 1.000939

sp75\_1106\_3\_pp\_1lag | 1.000216 .000223 0.97 0.332 .9997792 1.000653

sp75\_1106\_4\_pp\_1lag | .9988474 .001804 -0.64 0.523 .9953179 1.002389

sp75\_1106\_5\_pp\_1lag | .9992734 .000764 -0.95 0.342 .9977771 1.000772

sp75\_1106\_6\_pp\_1lag | .9902086 .00489 -1.99 0.046 .9806705 .9998394

sp75\_1106\_pp\_1lag | 1.003113 .001918 1.63 0.104 .999361 1.006879

sp75\_1107\_14\_pp\_1lag | .996288 .0040224 -0.92 0.357 .9884352 1.004203

sp75\_1400\_1\_pp\_1lag | 1.001266 .0031148 0.41 0.684 .9951797 1.007389

sp75\_1400\_2\_pp\_1lag | 1.002818 .0037569 0.75 0.453 .995482 1.010209

sp75\_1400\_3\_pp\_1lag | 1.000296 .0008755 0.34 0.735 .9985814 1.002013

sp75\_1400\_4\_pp\_1lag | .9988087 .0019819 -0.60 0.548 .9949319 1.002701

sp75\_1400\_pp\_1lag | .9998771 .0008341 -0.15 0.883 .9982435 1.001513

sp75\_1401\_1\_pp\_1lag | .9954568 .0093226 -0.49 0.627 .9773515 1.013897

sp75\_1401\_pp\_1lag | 1.00087 .0047178 0.18 0.854 .9916658 1.010159

sp75\_1403\_10\_pp\_1lag | 1.000523 .0002996 1.75 0.081 .9999358 1.00111

sp75\_1403\_11\_pp\_1lag | .9942933 .0053217 -1.07 0.285 .9839175 1.004779

sp75\_1403\_3\_pp\_1lag | .9923884 .0054742 -1.39 0.166 .9817169 1.003176

sp75\_1403\_4\_pp\_1lag | 1.006389 .0047346 1.35 0.176 .9971524 1.015712

sp75\_1403\_5\_pp\_1lag | .999662 .0002221 -1.52 0.128 .9992269 1.000097

sp75\_1403\_6\_pp\_1lag | 1.000072 .0001368 0.53 0.599 .9998038 1.00034

sp75\_1403\_7\_pp\_1lag | .9994455 .0008113 -0.68 0.494 .9978567 1.001037

sp75\_1403\_8\_pp\_1lag | .9997904 .000203 -1.03 0.302 .9993926 1.000188

sp75\_1403\_9\_pp\_1lag | .9986712 .0008036 -1.65 0.098 .9970975 1.000247

sp75\_1404\_1\_pp\_1lag | .9874793 .004301 -2.89 0.004 .9790854 .9959451

sp75\_1404\_pp\_1lag | .9958659 .0049461 -0.83 0.404 .9862188 1.005607

sp75\_1405\_1\_pp\_1lag | 1.005468 .0046265 1.19 0.236 .9964408 1.014577

sp75\_1405\_pp\_1lag | .9999192 .0002795 -0.29 0.773 .9993716 1.000467

sp75\_1431\_pp\_1lag | 1.004805 .0026771 1.80 0.072 .9995719 1.010066

sp75\_1432\_pp\_1lag | .9971967 .0021128 -1.33 0.185 .9930643 1.001346

sp75\_1433\_pp\_1lag | .9996721 .0018468 -0.18 0.859 .996059 1.003298

sp75\_1434\_pp\_1lag | .9978972 .0016002 -1.31 0.189 .9947658 1.001038

sp75\_1435\_pp\_1lag | .9988288 .0060975 -0.19 0.848 .9869491 1.010851

sp75\_1437\_pp\_1lag | 1.004073 .0048587 0.84 0.401 .9945953 1.013641

sp75\_150\_pp\_1lag | 1.006519 .0026369 2.48 0.013 1.001364 1.0117

sp75\_151\_pp\_1lag | .9967976 .0037551 -0.85 0.395 .9894649 1.004185

sp75\_153\_pp\_1lag | 1.00348 .0024484 1.42 0.155 .9986927 1.00829

sp75\_156\_pp\_1lag | 1.000704 .003572 0.20 0.844 .9937273 1.007729

sp75\_160\_pp\_1lag | 1.000725 .0060182 0.12 0.904 .9889992 1.012591

sp75\_1600\_2\_pp\_1lag | .999319 .0004059 -1.68 0.094 .9985236 1.000115

sp75\_1712\_10\_pp\_1lag | .997339 .0015248 -1.74 0.081 .9943549 1.000332

sp75\_1712\_6\_pp\_1lag | .9997365 .0008776 -0.30 0.764 .9980179 1.001458

sp75\_1720\_pp\_1lag | 1.000209 .0005327 0.39 0.695 .9991656 1.001254

sp75\_1721\_pp\_1lag | 1.004366 .0085553 0.51 0.609 .9877372 1.021275

sp75\_1725\_pp\_1lag | 1.000023 .0000644 0.35 0.723 .9998965 1.000149

sp75\_1726\_pp\_1lag | 1.003134 .001597 1.97 0.049 1.000009 1.006269

sp75\_1727\_pp\_1lag | .9885113 .016825 -0.68 0.497 .9560789 1.022044

sp75\_1728\_pp\_1lag | 1.004104 .0043549 0.94 0.345 .995605 1.012676

sp75\_1729\_pp\_1lag | 1.002115 .0019485 1.09 0.277 .998303 1.005941

sp75\_1730\_pp\_1lag | 1.001529 .0018444 0.83 0.407 .9979204 1.00515

sp75\_1731\_pp\_1lag | .999913 .0000413 -2.10 0.035 .999832 .9999941

sp75\_1903\_pp\_1lag | 1.000222 .0006816 0.33 0.744 .9988873 1.001559

sp75\_1909\_pp\_1lag | 1.0001 .0001062 0.94 0.348 .9998916 1.000308

sp75\_1910\_pp\_1lag | .9997324 .0001708 -1.57 0.117 .9993977 1.000067

sp75\_1911\_pp\_1lag | .9999984 .0002146 -0.01 0.994 .9995778 1.000419

sp75\_1912\_pp\_1lag | 1.000302 .0016765 0.18 0.857 .9970211 1.003593

sp75\_1913\_pp\_1lag | 1.001928 .0017296 1.12 0.265 .9985434 1.005323

sp75\_1914\_pp\_1lag | 1.000125 .0001421 0.88 0.378 .9998469 1.000404

sp75\_1915\_pp\_1lag | 1.002287 .0020464 1.12 0.263 .9982838 1.006305

sp75\_202\_pp\_1lag | 1.000021 .0000366 0.56 0.575 .9999487 1.000092

sp75\_208\_pp\_1lag | 1.000032 .0002897 0.11 0.911 .9994648 1.0006

sp75\_211\_pp\_1lag | 1.00008 .0002085 0.38 0.701 .9996713 1.000489

sp75\_212\_pp\_1lag | .9985435 .0005293 -2.75 0.006 .9975067 .9995814

sp75\_214\_pp\_1lag | 1.000356 .0005428 0.66 0.512 .9992924 1.00142

sp75\_312\_pp\_1lag | .9995992 .0005876 -0.68 0.495 .9984481 1.000752

sp75\_320\_pp\_1lag | .9994869 .000314 -1.63 0.102 .9988717 1.000103

sp75\_324\_pp\_1lag | .9991652 .0009437 -0.88 0.377 .9973172 1.001017

sp75\_337\_pp\_1lag | .9998334 .0004239 -0.39 0.694 .9990029 1.000665

sp75\_340\_pp\_1lag | 1.000197 .0001938 1.02 0.310 .9998171 1.000577

sp75\_341\_pp\_1lag | .9836621 .0078372 -2.07 0.039 .9684208 .9991433

sp75\_342\_pp\_1lag | 1.000037 .0000937 0.39 0.693 .9998533 1.000221

sp75\_344\_pp\_1lag | .9984789 .0017355 -0.88 0.381 .9950831 1.001886

sp75\_352\_pp\_1lag | .9985481 .0008047 -1.80 0.071 .9969721 1.000127

sp75\_382\_pp\_1lag | 1.000526 .0008945 0.59 0.556 .9987748 1.002281

sp75\_503\_pp\_1lag | .9999621 .0000522 -0.73 0.468 .9998598 1.000064

sp75\_504\_pp\_1lag | .9998197 .0017479 -0.10 0.918 .9963997 1.003251

sp75\_505\_pp\_1lag | 1.001457 .0020821 0.70 0.484 .9973843 1.005546

sp75\_506\_1\_pp\_1lag | 1.003154 .0016648 1.90 0.058 .9998961 1.006422

sp75\_506\_pp\_1lag | .9998457 .0012063 -0.13 0.898 .9974843 1.002213

sp75\_507\_pp\_1lag | .9995809 .0007247 -0.58 0.563 .9981615 1.001002

sp75\_511\_1\_pp\_1lag | .973365 .0074612 -3.52 0.000 .9588507 .988099

sp75\_511\_pp\_1lag | 1.000907 .0008304 1.09 0.275 .9992805 1.002535

sp75\_512\_1\_pp\_1lag | 1.002342 .005479 0.43 0.669 .9916607 1.013138

sp75\_512\_2\_pp\_1lag | 1.000436 .0002479 1.76 0.079 .9999501 1.000922

sp75\_512\_pp\_1lag | 1.000096 .0000668 1.44 0.150 .9999652 1.000227

sp75\_513\_1\_pp\_1lag | 1.000162 .0025718 0.06 0.950 .9951336 1.005215

sp75\_513\_pp\_1lag | .9985915 .0010291 -1.37 0.171 .9965766 1.000611

sp75\_514\_pp\_1lag | 1.000215 .00025 0.86 0.390 .9997249 1.000705

sp75\_515\_pp\_1lag | .9994121 .0001747 -3.36 0.001 .9990697 .9997546

sp75\_516\_1\_pp\_1lag | .9965611 .0022719 -1.51 0.131 .9921182 1.001024

sp75\_516\_2\_pp\_1lag | .9999744 .0004733 -0.05 0.957 .9990472 1.000902

sp75\_516\_pp\_1lag | .9999178 .0002874 -0.29 0.775 .9993547 1.000481

sp75\_517\_1\_pp\_1lag | 1.001035 .0025858 0.40 0.689 .99598 1.006116

sp75\_517\_pp\_1lag | .9999926 .0000515 -0.14 0.885 .9998915 1.000094

sp75\_518\_1\_pp\_1lag | 1.000175 .0002792 0.63 0.530 .9996283 1.000723

sp75\_518\_pp\_1lag | 1.000071 .0002184 0.32 0.746 .9996428 1.000499

sp75\_519\_pp\_1lag | .9980332 .0042312 -0.46 0.642 .9897745 1.006361

sp75\_520\_pp\_1lag | 1.000526 .0005698 0.92 0.355 .9994103 1.001644

sp75\_523\_1\_pp\_1lag | .9990198 .000593 -1.65 0.098 .9978583 1.000183

sp75\_523\_2\_pp\_1lag | 1.000768 .0004932 1.56 0.119 .9998016 1.001735

sp75\_523\_pp\_1lag | .998709 .0005795 -2.23 0.026 .9975739 .9998455

sp75\_600\_1\_pp\_1lag | .9983205 .0025779 -0.65 0.515 .9932807 1.003386

sp75\_600\_pp\_1lag | 1.001792 .0074359 0.24 0.809 .9873234 1.016473

sp75\_601\_1\_pp\_1lag | .9996412 .0002319 -1.55 0.122 .9991869 1.000096

sp75\_601\_2\_pp\_1lag | .9953391 .0041224 -1.13 0.259 .9872921 1.003452

sp75\_601\_3\_pp\_1lag | .995889 .0034542 -1.19 0.235 .9891419 1.002682

sp75\_601\_pp\_1lag | 1.000545 .000305 1.79 0.074 .9999477 1.001143

sp75\_602\_pp\_1lag | .9996958 .0007367 -0.41 0.680 .998253 1.001141

sp75\_603\_pp\_1lag | .9999348 .0011876 -0.05 0.956 .9976098 1.002265

sp75\_604\_pp\_1lag | 1.00015 .0000816 1.84 0.066 .9999898 1.00031

sp75\_605\_pp\_1lag | 1.000249 .0003559 0.70 0.484 .9995518 1.000947

sp75\_606\_pp\_1lag | .9999966 .0001423 -0.02 0.981 .9997177 1.000276

sp75\_607\_pp\_1lag | 1.000333 .0007673 0.43 0.664 .9988302 1.001838

sp75\_700\_1\_pp\_1lag | .9929816 .0028563 -2.45 0.014 .9873991 .9985957

sp75\_700\_pp\_1lag | .9987859 .0010428 -1.16 0.245 .9967441 1.000832

sp75\_701\_1\_pp\_1lag | 1.000609 .0011283 0.54 0.589 .9984004 1.002823

sp75\_701\_2\_pp\_1lag | 1.001334 .0011923 1.12 0.263 .9989999 1.003674

sp75\_701\_3\_pp\_1lag | 1.001576 .001046 1.51 0.132 .9995282 1.003628

sp75\_701\_4\_pp\_1lag | 1.007801 .0034355 2.28 0.023 1.00109 1.014557

sp75\_701\_5\_pp\_1lag | .9986466 .0018764 -0.72 0.471 .9949758 1.002331

sp75\_701\_pp\_1lag | 1.000174 .0001983 0.88 0.380 .9997854 1.000563

sp75\_702\_1\_pp\_1lag | 1.003215 .0023928 1.35 0.178 .9985361 1.007916

sp75\_702\_pp\_1lag | .9900297 .0102387 -0.97 0.333 .9701642 1.010302

sp75\_703\_1\_pp\_1lag | 1.001312 .0099154 0.13 0.895 .9820651 1.020935

sp75\_703\_2\_pp\_1lag | .9961128 .002911 -1.33 0.183 .9904236 1.001835

sp75\_703\_3\_pp\_1lag | 1.001051 .0014445 0.73 0.467 .9982236 1.003886

sp75\_703\_4\_pp\_1lag | .8445596 .0110841 -12.87 0.000 .8231122 .8665659

sp75\_703\_pp\_1lag | 1.000687 .0004946 1.39 0.165 .9997179 1.001657

sp75\_704\_pp\_1lag | .9995245 .0021879 -0.22 0.828 .9952454 1.003822

sp75\_705\_1\_pp\_1lag | .9989076 .0016337 -0.67 0.504 .9957108 1.002115

sp75\_705\_3\_pp\_1lag | 1.009661 .0061244 1.59 0.113 .9977288 1.021737

sp75\_705\_8\_pp\_1lag | 1.002671 .0033515 0.80 0.425 .996124 1.009262

sp75\_705\_pp\_1lag | 1.00687 .0025227 2.73 0.006 1.001938 1.011827

sp75\_706\_pp\_1lag | 1.000795 .0013285 0.60 0.549 .9981949 1.003402

sp75\_800\_2\_pp\_1lag | .6126584 .0227478 -13.20 0.000 .5696572 .6589055

sp75\_800\_3\_pp\_1lag | 1.000455 .0021208 0.21 0.830 .9963069 1.00462

sp75\_800\_4\_pp\_1lag | 1.000661 .0019607 0.34 0.736 .9968259 1.004512

sp75\_800\_pp\_1lag | .9984445 .00142 -1.09 0.274 .9956653 1.001232

sp75\_801\_pp\_1lag | .9966742 .0040647 -0.82 0.414 .9887394 1.004673

sp75\_802\_pp\_1lag | .9971492 .0024922 -1.14 0.253 .9922765 1.002046

sp75\_803\_2\_pp\_1lag | 1.001022 .0029863 0.34 0.732 .9951858 1.006892

sp75\_803\_pp\_1lag | 1.001047 .0013571 0.77 0.440 .9983905 1.00371

sp75\_804\_pp\_1lag | .9997907 .0007449 -0.28 0.779 .9983319 1.001252

sp75\_805\_pp\_1lag | 1.002175 .00224 0.97 0.331 .9977941 1.006575

sp75\_806\_pp\_1lag | .9994872 .0080931 -0.06 0.949 .9837502 1.015476

sp75\_807\_pp\_1lag | 1.000333 .0001699 1.96 0.050 1 1.000666

sp75\_808\_pp\_1lag | 1.000338 .0012311 0.27 0.784 .9979282 1.002754

sp75\_809\_pp\_1lag | 1.000365 .0006012 0.61 0.543 .9991877 1.001545

sp75\_810\_pp\_1lag | 1.000535 .0008982 0.60 0.551 .9987763 1.002297

sp75\_811\_pp\_1lag | 1.000692 .0006629 1.04 0.296 .9993939 1.001993

sp75\_812\_pp\_1lag | .9997097 .0027742 -0.10 0.917 .9942872 1.005162

sp75\_814\_pp\_1lag | .9993982 .0020026 -0.30 0.764 .9954808 1.003331

sp75\_815\_pp\_1lag | 1.002978 .0014308 2.08 0.037 1.000178 1.005786

sp75\_816\_pp\_1lag | .9996382 .0004441 -0.81 0.415 .9987682 1.000509

sp75\_818\_pp\_1lag | .9997183 .002499 -0.11 0.910 .9948323 1.004628

sp75\_820\_pp\_1lag | 1.003696 .001383 2.68 0.007 1.000989 1.00641

sp75\_821\_pp\_1lag | 1.000278 .0007861 0.35 0.724 .9987382 1.00182

sp75\_825\_pp\_1lag | 1.001512 .0023211 0.65 0.515 .9969727 1.006071

sp75\_827\_pp\_1lag | 1.003647 .0024375 1.50 0.134 .9988811 1.008436

sp75\_831\_pp\_1lag | .9928681 .0033204 -2.14 0.032 .9863816 .9993972

sp75\_832\_pp\_1lag | .986965 .0138784 -0.93 0.351 .9601352 1.014544

sp75\_834\_pp\_1lag | .5536696 .0352666 -9.28 0.000 .4886889 .6272908

sp75\_900\_2\_pp\_1lag | .9965812 .0035594 -0.96 0.338 .9896292 1.003582

sp75\_900\_3\_pp\_1lag | .9997048 .0012975 -0.23 0.820 .9971649 1.002251

sp75\_900\_4\_pp\_1lag | .9994968 .0005803 -0.87 0.386 .9983601 1.000635

sp75\_900\_pp\_1lag | .999594 .0003464 -1.17 0.241 .9989154 1.000273

sp75\_901\_pp\_1lag | .999865 .0015628 -0.09 0.931 .9968066 1.002933

sp75\_902\_1\_pp\_1lag | 1.000086 .0034004 0.03 0.980 .9934435 1.006773

sp75\_902\_2\_pp\_1lag | 1.00187 .0019871 0.94 0.346 .9979833 1.005773

sp75\_902\_4\_pp\_1lag | 1.000383 .0008165 0.47 0.639 .9987844 1.001985

sp75\_902\_pp\_1lag | 1.000798 .0003899 2.05 0.041 1.000034 1.001563

sp75\_903\_pp\_1lag | 1.000816 .0006233 1.31 0.190 .9995954 1.002039

sp75\_904\_pp\_1lag | 1.000214 .0001754 1.22 0.222 .9998704 1.000558

sp75\_905\_pp\_1lag | .9984069 .0046382 -0.34 0.731 .9893575 1.007539

sp75\_907\_pp\_1lag | 1.000528 .001282 0.41 0.681 .9980181 1.003043

sp77\_103\_pp\_1lag | 1.000061 .0021937 0.03 0.978 .9957702 1.00437

sp77\_104\_pp\_1lag | .9942272 .0055581 -1.04 0.300 .9833929 1.005181

sp77\_1103\_pp\_1lag | .9997187 .0003976 -0.71 0.479 .9989398 1.000498

sp77\_1104\_pp\_1lag | 1.000067 .0001526 0.44 0.661 .9997679 1.000366

sp77\_1106\_pp\_1lag | 1.007062 .0139397 0.51 0.611 .9801083 1.034757

sp77\_1111\_pp\_1lag | .9963495 .0041819 -0.87 0.384 .9881868 1.00458

sp77\_1112\_pp\_1lag | .999745 .0012392 -0.21 0.837 .9973192 1.002177

sp77\_1403\_pp\_1lag | 1.001236 .0018007 0.69 0.492 .997713 1.004772

sp77\_1432\_pp\_1lag | .997019 .0045253 -0.66 0.511 .9881889 1.005928

sp77\_1433\_pp\_1lag | .9983353 .0020796 -0.80 0.424 .9942677 1.00242

sp77\_1434\_pp\_1lag | 1.003148 .0028798 1.09 0.274 .9975199 1.008808

sp77\_1437\_pp\_1lag | .9954715 .0023811 -1.90 0.058 .9908156 1.000149

sp77\_1438\_pp\_1lag | .9921294 .0086754 -0.90 0.366 .9752709 1.009279

sp77\_1605\_pp\_1lag | .9998775 .0001887 -0.65 0.516 .9995078 1.000247

sp77\_1606\_pp\_1lag | 1.000225 .000262 0.86 0.390 .999712 1.000739

sp77\_1710\_pp\_1lag | .9994562 .000434 -1.25 0.210 .998606 1.000307

sp77\_1802\_pp\_1lag | .9931947 .004777 -1.42 0.156 .9838758 1.002602

sp77\_1906\_pp\_1lag | 1.005652 .0047906 1.18 0.237 .9963068 1.015086

sp77\_1915\_pp\_1lag | 1.000848 .0018055 0.47 0.638 .997316 1.004393

sp77\_1916\_pp\_1lag | 1.00361 .0026804 1.35 0.177 .9983705 1.008878

sp77\_200\_pp\_1lag | .9998201 .0002414 -0.75 0.456 .9993471 1.000293

sp77\_202\_pp\_1lag | .9992347 .0003292 -2.32 0.020 .9985897 .9998801

sp77\_203\_pp\_1lag | 1.000845 .0026408 0.32 0.749 .9956827 1.006034

sp77\_204\_pp\_1lag | .9992185 .0005321 -1.47 0.142 .9981762 1.000262

sp77\_205\_pp\_1lag | 1.000212 .0001561 1.36 0.174 .9999061 1.000518

sp77\_206\_pp\_1lag | 1.000336 .000903 0.37 0.709 .9985682 1.002108

sp77\_207\_pp\_1lag | 1.000353 .0006458 0.55 0.585 .9990877 1.001619

sp77\_208\_pp\_1lag | 1.000321 .0002949 1.09 0.276 .9997431 1.000899

sp77\_210\_pp\_1lag | .9985796 .0011898 -1.19 0.233 .9962503 1.000914

sp77\_216\_pp\_1lag | 1.000415 .0006769 0.61 0.540 .9990891 1.001743

sp77\_305\_pp\_1lag | 1.028189 .011959 2.39 0.017 1.005015 1.051898

sp77\_309\_pp\_1lag | 1.005038 .0056406 0.90 0.371 .9940431 1.016154

sp77\_314\_pp\_1lag | .9853723 .0084534 -1.72 0.086 .9689425 1.002081

sp77\_315\_pp\_1lag | .9864757 .009069 -1.48 0.139 .9688601 1.004412

sp77\_400\_pp\_1lag | 1.000172 .000174 0.99 0.323 .9998309 1.000513

sp77\_401\_pp\_1lag | .9987698 .001256 -0.98 0.328 .9963112 1.001235

sp77\_402\_pp\_1lag | 1.000068 .0009445 0.07 0.943 .9982183 1.001921

sp77\_403\_1\_pp\_1lag | 1.000946 .0016342 0.58 0.562 .9977486 1.004155

sp77\_403\_2\_pp\_1lag | 1.014868 .0095785 1.56 0.118 .9962666 1.033816

sp77\_403\_pp\_1lag | 1.006411 .0036263 1.77 0.076 .9993283 1.013543

sp77\_404\_pp\_1lag | 1 .0001453 0.00 1.000 .9997153 1.000285

sp77\_405\_pp\_1lag | 1.002247 .0018367 1.22 0.221 .9986533 1.005853

sp77\_408\_pp\_1lag | .9993535 .0017368 -0.37 0.710 .9959552 1.002763

sp77\_409\_pp\_1lag | .9919934 .0059006 -1.35 0.177 .9804956 1.003626

sp77\_410\_pp\_1lag | 1.000188 .0003112 0.60 0.546 .9995783 1.000798

sp77\_411\_pp\_1lag | .9878424 .0075971 -1.59 0.112 .973064 1.002845

sp77\_412\_pp\_1lag | 1.000068 .0014016 0.05 0.961 .9973248 1.002819

sp77\_413\_pp\_1lag | .9847984 .002458 -6.14 0.000 .9799927 .9896277

sp77\_500\_pp\_1lag | .9984273 .0023444 -0.67 0.503 .9938428 1.003033

sp77\_501\_pp\_1lag | .9989564 .001805 -0.58 0.563 .9954248 1.0025

sp77\_502\_1\_pp\_1lag | 1.005258 .0128306 0.41 0.681 .9804221 1.030722

sp77\_502\_2\_pp\_1lag | 1.001641 .0011048 1.49 0.137 .9994784 1.003809

sp77\_502\_pp\_1lag | 1.000027 .0001985 0.13 0.893 .9996377 1.000416

sp77\_503\_1\_pp\_1lag | 1.004667 .0057826 0.81 0.419 .9933967 1.016065

sp77\_503\_pp\_1lag | 1.00043 .0028779 0.15 0.881 .9948055 1.006087

sp77\_504\_pp\_1lag | .9991482 .0007291 -1.17 0.243 .9977202 1.000578

sp77\_505\_pp\_1lag | 1.000083 .0004117 0.20 0.841 .9992762 1.00089

sp77\_506\_1\_pp\_1lag | 1.00099 .0010736 0.92 0.356 .9988881 1.003097

sp77\_506\_pp\_1lag | .9995271 .0006331 -0.75 0.455 .9982871 1.000769

sp77\_507\_pp\_1lag | 1.00156 .002068 0.75 0.450 .997515 1.005621

sp77\_508\_1\_pp\_1lag | .9893443 .0039804 -2.66 0.008 .9815735 .9971766

sp77\_508\_pp\_1lag | 1.001265 .0016009 0.79 0.429 .9981324 1.004408

sp77\_509\_pp\_1lag | .9993216 .000921 -0.74 0.462 .9975181 1.001128

sp77\_510\_pp\_1lag | .9941298 .0050775 -1.15 0.249 .9842277 1.004132

sp77\_511\_pp\_1lag | .9936877 .002988 -2.11 0.035 .9878486 .9995614

sp77\_512\_pp\_1lag | .9998137 .0003746 -0.50 0.619 .9990797 1.000548

sp77\_513\_pp\_1lag | 1.000179 .0005784 0.31 0.757 .9990457 1.001313

sp77\_514\_pp\_1lag | .9932538 .0063332 -1.06 0.288 .9809182 1.005744

sp77\_515\_pp\_1lag | .9959427 .0109056 -0.37 0.710 .9747959 1.017548

sp77\_516\_pp\_1lag | .9996973 .0002205 -1.37 0.170 .9992651 1.00013

sp77\_600\_pp\_1lag | 1.005786 .0026419 2.20 0.028 1.000621 1.010977

sp77\_601\_pp\_1lag | .9991939 .0026057 -0.31 0.757 .9940999 1.004314

sp77\_602\_pp\_1lag | 1.00345 .0029548 1.17 0.242 .9976755 1.009258

sp77\_603\_pp\_1lag | 1.011298 .0033942 3.35 0.001 1.004667 1.017972

sp77\_604\_pp\_1lag | 1.000325 .0020817 0.16 0.876 .9962531 1.004413

sp77\_605\_pp\_1lag | .9764994 .0117735 -1.97 0.049 .9536943 .9998498

sp77\_606\_1\_pp\_1lag | .9894656 .0059516 -1.76 0.078 .977869 1.0012

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

sp77\_700\_1\_pp\_1lag | 1.006982 .0040548 1.73 0.084 .9990665 1.014961

sp77\_700\_pp\_1lag | .9977938 .0019292 -1.14 0.253 .9940197 1.001582

sp77\_701\_1\_pp\_1lag | 1.00342 .0028525 1.20 0.230 .9978448 1.009027

sp77\_701\_2\_pp\_1lag | .9988016 .0025908 -0.46 0.644 .9937366 1.003892

sp77\_701\_3\_pp\_1lag | 1.006856 .006373 1.08 0.280 .9944427 1.019425

sp77\_701\_4\_pp\_1lag | 1.000485 .0022559 0.21 0.830 .9960731 1.004916

sp77\_701\_pp\_1lag | .999412 .0006219 -0.95 0.345 .9981938 1.000632

sp77\_703\_pp\_1lag | .9948153 .0063038 -0.82 0.412 .9825365 1.007247

sp77\_704\_1\_pp\_1lag | .9990524 .0016305 -0.58 0.561 .9958618 1.002253

sp77\_704\_8\_pp\_1lag | .9983612 .0036145 -0.45 0.651 .991302 1.005471

sp77\_704\_9\_pp\_1lag | .9903589 .0078646 -1.22 0.222 .975064 1.005894

sp77\_704\_pp\_1lag | .9952258 .0045599 -1.04 0.296 .9863286 1.004203

sp77\_705\_pp\_1lag | 1.000922 .0011689 0.79 0.430 .9986338 1.003216

sp77\_800\_1\_pp\_1lag | 1.000667 .003599 0.19 0.853 .9936381 1.007746

sp77\_800\_2\_pp\_1lag | 1.003839 .0022427 1.72 0.086 .9994529 1.008244

sp77\_800\_pp\_1lag | 1.005642 .0043357 1.31 0.192 .9971804 1.014176

sp77\_801\_pp\_1lag | .9859732 .010903 -1.28 0.201 .9648335 1.007576

sp77\_802\_pp\_1lag | .9884173 .0053527 -2.15 0.031 .9779816 .9989643

sp77\_803\_pp\_1lag | 1.006758 .0126098 0.54 0.591 .9823442 1.031779

sp77\_804\_pp\_1lag | .6341398 .0212019 -13.62 0.000 .593917 .6770866

sp77\_805\_pp\_1lag | .9928705 .003741 -1.90 0.058 .9855652 1.00023

sp77\_807\_1\_pp\_1lag | .9988437 .0039688 -0.29 0.771 .9910952 1.006653

sp77\_807\_2\_pp\_1lag | 1.002092 .0041483 0.50 0.614 .993994 1.010255

sp77\_807\_3\_pp\_1lag | 1.001681 .0019464 0.86 0.387 .9978734 1.005503

sp77\_807\_pp\_1lag | .9977887 .002987 -0.74 0.460 .9919515 1.00366

sp77\_808\_pp\_1lag | 1.010509 .0051516 2.05 0.040 1.000463 1.020657

sp77\_809\_pp\_1lag | .9981117 .0011514 -1.64 0.101 .9958576 1.000371

sp77\_810\_pp\_1lag | 1.00032 .0024352 0.13 0.896 .9955582 1.005104

sp77\_900\_1\_pp\_1lag | 1.00711 .0036909 1.93 0.053 .9999022 1.014371

sp77\_900\_2\_pp\_1lag | 1.002545 .0019186 1.33 0.184 .9987922 1.006313

sp77\_900\_pp\_1lag | .9986036 .0025665 -0.54 0.587 .9935859 1.003647

sp77\_901\_1\_pp\_1lag | .9928942 .0056281 -1.26 0.208 .9819243 1.003987

sp77\_901\_pp\_1lag | 1 .002102 0.00 1.000 .9958886 1.004128

sp77\_902\_2\_pp\_1lag | 1.002341 .003699 0.63 0.526 .9951167 1.009617

sp77\_902\_3\_pp\_1lag | 1.000656 .0074964 0.09 0.930 .9860705 1.015457

sp77\_902\_pp\_1lag | 1.001894 .0030361 0.62 0.532 .995961 1.007862

sp77\_903\_pp\_1lag | .9966083 .0021878 -1.55 0.122 .9923295 1.000906

sp77\_904\_pp\_1lag | .9997117 .0005745 -0.50 0.616 .9985863 1.000838

mine\_time | .9987171 .0071611 -0.18 0.858 .9847797 1.012852

onsite\_insp\_hours | .9999128 .0000534 -1.63 0.103 .9998081 1.000017

|

state |

1 | 1.080931 .1342323 0.63 0.531 .8474111 1.378803

2 | 1.612249 .1559645 4.94 0.000 1.333796 1.948835

3 | .7262739 .12359 -1.88 0.060 .5202972 1.013793

4 | .9868141 .090022 -0.15 0.884 .8252481 1.180011

5 | .8324733 .1240016 -1.23 0.218 .6216974 1.114709

6 | .8554347 .0457902 -2.92 0.004 .7702349 .9500587

7 | .9508 .2351013 -0.20 0.838 .5856191 1.543701

8 | 1.066633 .1007774 0.68 0.495 .8863231 1.283625

9 | .8280119 .0916544 -1.70 0.088 .6665231 1.028627

10 | .87013 .1465528 -0.83 0.409 .6254886 1.210456

11 | .8824727 .236966 -0.47 0.641 .5213536 1.493723

12 | .9868798 .0892485 -0.15 0.884 .8265819 1.178264

13 | 1.355823 .2303458 1.79 0.073 .9718274 1.891545

14 | .6244919 .0849776 -3.46 0.001 .4782993 .8153683

15 | .6543139 .0457599 -6.07 0.000 .5705015 .7504392

17 | 1.267108 .1731986 1.73 0.083 .9693139 1.656391

|

time |

2000 | 1.040483 .069803 0.59 0.554 .9122844 1.186696

2002 | .92073 .062779 -1.21 0.226 .8055529 1.052375

2003 | .8641647 .0662879 -1.90 0.057 .7435377 1.004361

2004 | .8284245 .0605149 -2.58 0.010 .717917 .9559421

2005 | .720002 .0528612 -4.47 0.000 .6235052 .8314331

2006 | .7323683 .056701 -4.02 0.000 .6292573 .8523751

2007 | .6473186 .05289 -5.32 0.000 .5515305 .7597428

2008 | .5178017 .0472646 -7.21 0.000 .4329785 .6192423

2009 | .4367333 .0416252 -8.69 0.000 .3623164 .5264348

2010 | .4745423 .0440783 -8.02 0.000 .3955581 .5692979

2011 | .4988383 .0470218 -7.38 0.000 .4146899 .6000621

2012 | .5129232 .0479518 -7.14 0.000 .4270471 .6160685

2013 | .4323843 .0432859 -8.38 0.000 .3553499 .5261184

2014 | .3986083 .0426003 -8.61 0.000 .323278 .4914921

2015 | .4478981 .0504862 -7.13 0.000 .359115 .5586309

|

\_cons | .0000185 1.26e-06 -160.19 0.000 .0000162 .0000211

ln(hours) | 1 (exposure)

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

**. eststo: nbreg MR `subpart\_penpoints\_lag\_1\_vars' `covariates' ib(freq).state ib(freq).time if sample\_pp == 1, vce(cl mineid) exposure(hours) iter(50) irr**

note: sp75\_1001\_pp\_1lag omitted because of collinearity

note: sp75\_1106\_6\_pp\_1lag omitted because of collinearity

note: sp75\_1431\_pp\_1lag omitted because of collinearity

note: sp75\_511\_1\_pp\_1lag omitted because of collinearity

note: sp75\_800\_2\_pp\_1lag omitted because of collinearity

note: sp75\_806\_pp\_1lag omitted because of collinearity

note: sp77\_413\_pp\_1lag omitted because of collinearity

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

note: sp77\_804\_pp\_1lag omitted because of collinearity

Fitting Poisson model:

Iteration 0: log pseudolikelihood = -39067.558

Iteration 1: log pseudolikelihood = -22500.602 (backed up)

Iteration 2: log pseudolikelihood = -14788.104

Iteration 3: log pseudolikelihood = -9911.1214

Iteration 4: log pseudolikelihood = -4814.7207

Iteration 5: log pseudolikelihood = -4455.8725

Iteration 6: log pseudolikelihood = -4396.9579

Iteration 7: log pseudolikelihood = -4394.4752

Iteration 8: log pseudolikelihood = -4394.4211

Iteration 9: log pseudolikelihood = -4394.421

Fitting constant-only model:

Iteration 0: log pseudolikelihood = -4833.1956

Iteration 1: log pseudolikelihood = -4642.8135

Iteration 2: log pseudolikelihood = -4639.576

Iteration 3: log pseudolikelihood = -4639.57

Iteration 4: log pseudolikelihood = -4639.57

Fitting full model:

Iteration 0: log pseudolikelihood = -4440.4844

Iteration 1: log pseudolikelihood = -4384.9843

Iteration 2: log pseudolikelihood = -4376.0972

Iteration 3: log pseudolikelihood = -4375.8605

Iteration 4: log pseudolikelihood = -4375.8603

Negative binomial regression Number of obs = 3,333

Wald chi2(310) = .

Dispersion = mean Prob > chi2 = .

Log pseudolikelihood = -4375.8603 Pseudo R2 = 0.0568

(Std. Err. adjusted for 727 clusters in mineid)

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| Robust

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

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

sp47\_41\_pp\_1lag | .9992618 .0007711 -0.96 0.339 .9977517 1.000774

sp47\_42\_pp\_1lag | .9949613 .0031788 -1.58 0.114 .9887503 1.001211

sp47\_44\_pp\_1lag | 1.000337 .0011527 0.29 0.770 .9980802 1.002599

sp48\_11\_pp\_1lag | 1.001328 .0009542 1.39 0.164 .9994599 1.0032

sp48\_24\_pp\_1lag | .9457228 .0027087 -19.48 0.000 .9404288 .9510466

sp48\_25\_pp\_1lag | 1.001916 .001466 1.31 0.191 .9990473 1.004794

sp48\_26\_pp\_1lag | 1.002285 .0009596 2.38 0.017 1.000406 1.004167

sp48\_27\_pp\_1lag | 1.000033 .0008823 0.04 0.970 .9983053 1.001764

sp48\_28\_pp\_1lag | .9984382 .0017776 -0.88 0.380 .9949602 1.001928

sp48\_4\_pp\_1lag | 1.010515 .001972 5.36 0.000 1.006658 1.014388

sp48\_5\_pp\_1lag | .9983216 .0023702 -0.71 0.479 .993687 1.002978

sp48\_6\_pp\_1lag | 1.000994 .0007778 1.28 0.201 .9994711 1.00252

sp48\_7\_pp\_1lag | 1.000592 .0006934 0.85 0.393 .9992334 1.001952

sp48\_8\_pp\_1lag | 1.0011 .0013619 0.81 0.419 .9984345 1.003773

sp71\_701\_pp\_1lag | 1.002895 .0059106 0.49 0.624 .9913769 1.014547

sp72\_503\_pp\_1lag | .9989824 .0008902 -1.14 0.253 .9972392 1.000729

sp72\_610\_pp\_1lag | 1.005796 .0046393 1.25 0.210 .9967441 1.01493

sp72\_620\_pp\_1lag | 1.010737 .002879 3.75 0.000 1.00511 1.016395

sp72\_630\_pp\_1lag | 1.000163 .0001065 1.53 0.127 .9999538 1.000371

sp75\_100\_pp\_1lag | 1.001759 .0020263 0.87 0.385 .9977955 1.005739

sp75\_1001\_1\_pp\_1lag | .9994395 .0032642 -0.17 0.864 .9930622 1.005858

sp75\_1001\_pp\_1lag | 1 (omitted)

sp75\_1003\_1\_pp\_1lag | .9930161 .0032999 -2.11 0.035 .9865695 .9995048

sp75\_1100\_2\_pp\_1lag | 1.000158 .0000979 1.61 0.108 .9999657 1.000349

sp75\_1101\_20\_pp\_1lag | .9961125 .0025419 -1.53 0.127 .9911429 1.001107

sp75\_1102\_pp\_1lag | .9996768 .0008208 -0.39 0.694 .9980694 1.001287

sp75\_1103\_4\_pp\_1lag | 1.000048 .0001752 0.27 0.785 .9997045 1.000391

sp75\_1104\_pp\_1lag | .9997572 .0007278 -0.33 0.739 .9983317 1.001185

sp75\_1106\_2\_pp\_1lag | 1.00034 .0006126 0.56 0.579 .9991402 1.001541

sp75\_1106\_3\_pp\_1lag | 1.000045 .0002196 0.20 0.838 .9996144 1.000475

sp75\_1106\_4\_pp\_1lag | .9995119 .0016565 -0.29 0.768 .9962705 1.002764

sp75\_1106\_5\_pp\_1lag | .9992925 .0007437 -0.95 0.342 .997836 1.000751

sp75\_1106\_6\_pp\_1lag | 1 (omitted)

sp75\_1106\_pp\_1lag | 1.002071 .0014713 1.41 0.159 .9991919 1.004959

sp75\_1107\_14\_pp\_1lag | .9991017 .0034282 -0.26 0.793 .9924051 1.005843

sp75\_1400\_1\_pp\_1lag | 1.003002 .0023518 1.28 0.201 .9984035 1.007622

sp75\_1400\_2\_pp\_1lag | 1.001616 .0041368 0.39 0.696 .9935406 1.009757

sp75\_1400\_3\_pp\_1lag | 1.000097 .0007145 0.14 0.893 .9986971 1.001498

sp75\_1400\_4\_pp\_1lag | .9987874 .0017468 -0.69 0.488 .9953696 1.002217

sp75\_1400\_pp\_1lag | .9998043 .0008307 -0.24 0.814 .9981775 1.001434

sp75\_1401\_1\_pp\_1lag | .9939316 .0087815 -0.69 0.491 .9768683 1.011293

sp75\_1401\_pp\_1lag | 1.002839 .0048592 0.59 0.558 .9933604 1.012409

sp75\_1403\_10\_pp\_1lag | 1.000269 .0003313 0.81 0.417 .9996197 1.000918

sp75\_1403\_11\_pp\_1lag | .9935901 .0047269 -1.35 0.176 .9843686 1.002898

sp75\_1403\_3\_pp\_1lag | .9961482 .0051175 -0.75 0.453 .9861685 1.006229

sp75\_1403\_4\_pp\_1lag | 1.004855 .0132401 0.37 0.713 .9792369 1.031143

sp75\_1403\_5\_pp\_1lag | .9998704 .0001714 -0.76 0.449 .9995345 1.000206

sp75\_1403\_6\_pp\_1lag | .9999521 .0001483 -0.32 0.747 .9996615 1.000243

sp75\_1403\_7\_pp\_1lag | 1.000261 .0008875 0.29 0.769 .9985228 1.002002

sp75\_1403\_8\_pp\_1lag | .9998762 .0002209 -0.56 0.575 .9994435 1.000309

sp75\_1403\_9\_pp\_1lag | .9988812 .0008207 -1.36 0.173 .9972741 1.000491

sp75\_1404\_1\_pp\_1lag | .99324 .0058254 -1.16 0.247 .9818878 1.004723

sp75\_1404\_pp\_1lag | .995469 .0052128 -0.87 0.386 .9853043 1.005739

sp75\_1405\_1\_pp\_1lag | 1.003649 .0036655 1.00 0.319 .9964903 1.010859

sp75\_1405\_pp\_1lag | .9999831 .0002512 -0.07 0.946 .999491 1.000476

sp75\_1431\_pp\_1lag | 1 (omitted)

sp75\_1432\_pp\_1lag | .9974879 .0021551 -1.16 0.244 .993273 1.001721

sp75\_1433\_pp\_1lag | .9998743 .0017217 -0.07 0.942 .9965054 1.003255

sp75\_1434\_pp\_1lag | .9963021 .0013128 -2.81 0.005 .9937324 .9988784

sp75\_1435\_pp\_1lag | .9977584 .0061028 -0.37 0.714 .9858686 1.009792

sp75\_1437\_pp\_1lag | 1.001006 .0028847 0.35 0.727 .9953678 1.006676

sp75\_150\_pp\_1lag | 1.006076 .0025506 2.39 0.017 1.001089 1.011088

sp75\_151\_pp\_1lag | .9998656 .0035559 -0.04 0.970 .9929205 1.006859

sp75\_153\_pp\_1lag | 1.00394 .0019116 2.07 0.039 1.0002 1.007694

sp75\_156\_pp\_1lag | 1.001805 .0035239 0.51 0.608 .994922 1.008735

sp75\_160\_pp\_1lag | 1.005527 .005127 1.08 0.280 .9955287 1.015626

sp75\_1600\_2\_pp\_1lag | .9993485 .0003443 -1.89 0.059 .998674 1.000024

sp75\_1712\_10\_pp\_1lag | .9980831 .0014736 -1.30 0.194 .9951991 1.000975

sp75\_1712\_6\_pp\_1lag | .9994965 .0007058 -0.71 0.476 .9981142 1.000881

sp75\_1720\_pp\_1lag | .9998377 .0005129 -0.32 0.752 .9988329 1.000843

sp75\_1721\_pp\_1lag | 1.014332 .0022502 6.41 0.000 1.009931 1.018752

sp75\_1725\_pp\_1lag | 1.000067 .0000589 1.13 0.257 .9999513 1.000182

sp75\_1726\_pp\_1lag | 1.001839 .0012437 1.48 0.139 .9994044 1.004279

sp75\_1727\_pp\_1lag | .6541036 .0151016 -18.39 0.000 .6251647 .6843821

sp75\_1728\_pp\_1lag | 1.003049 .0030977 0.99 0.324 .9969955 1.009138

sp75\_1729\_pp\_1lag | 1.000562 .0018988 0.30 0.767 .996847 1.00429

sp75\_1730\_pp\_1lag | 1.003326 .001914 1.74 0.082 .9995819 1.007084

sp75\_1731\_pp\_1lag | .999999 .0000343 -0.03 0.978 .9999319 1.000066

sp75\_1903\_pp\_1lag | .9999415 .0006731 -0.09 0.931 .9986231 1.001262

sp75\_1909\_pp\_1lag | 1.000025 .0000922 0.27 0.787 .9998442 1.000206

sp75\_1910\_pp\_1lag | .9997081 .0001551 -1.88 0.060 .9994042 1.000012

sp75\_1911\_pp\_1lag | .9999423 .0001846 -0.31 0.755 .9995805 1.000304

sp75\_1912\_pp\_1lag | .9987163 .0014056 -0.91 0.361 .9959652 1.001475

sp75\_1913\_pp\_1lag | 1.002282 .0021025 1.09 0.277 .9981701 1.006412

sp75\_1914\_pp\_1lag | 1.000256 .0001315 1.95 0.051 .9999987 1.000514

sp75\_1915\_pp\_1lag | 1.001543 .0019325 0.80 0.424 .997762 1.005337

sp75\_202\_pp\_1lag | .9999664 .0000309 -1.09 0.278 .9999058 1.000027

sp75\_208\_pp\_1lag | 1.000145 .0002652 0.55 0.584 .9996254 1.000665

sp75\_211\_pp\_1lag | 1.000198 .0002148 0.92 0.357 .9997771 1.000619

sp75\_212\_pp\_1lag | .9991343 .0005639 -1.53 0.125 .9980297 1.00024

sp75\_214\_pp\_1lag | 1.000452 .0004757 0.95 0.342 .9995199 1.001385

sp75\_312\_pp\_1lag | .9997182 .0005143 -0.55 0.584 .9987106 1.000727

sp75\_320\_pp\_1lag | .999546 .000313 -1.45 0.147 .9989328 1.00016

sp75\_324\_pp\_1lag | 1.000118 .0008347 0.14 0.887 .9984837 1.001756

sp75\_337\_pp\_1lag | .9998983 .0003812 -0.27 0.790 .9991513 1.000646

sp75\_340\_pp\_1lag | 1.000128 .0001882 0.68 0.495 .9997596 1.000497

sp75\_341\_pp\_1lag | .996904 .0065288 -0.47 0.636 .9841896 1.009783

sp75\_342\_pp\_1lag | 1.000102 .0000886 1.15 0.251 .9999281 1.000275

sp75\_344\_pp\_1lag | .9982456 .0015571 -1.13 0.260 .9951983 1.001302

sp75\_352\_pp\_1lag | .9988895 .0007296 -1.52 0.128 .9974605 1.000321

sp75\_382\_pp\_1lag | 1.000572 .0007409 0.77 0.440 .9991213 1.002026

sp75\_503\_pp\_1lag | .9999806 .0000449 -0.43 0.666 .9998925 1.000069

sp75\_504\_pp\_1lag | 1.000699 .0015265 0.46 0.647 .9977116 1.003695

sp75\_505\_pp\_1lag | 1.00249 .0022099 1.13 0.259 .9981677 1.00683

sp75\_506\_1\_pp\_1lag | 1.002577 .0015257 1.69 0.091 .9995915 1.005572

sp75\_506\_pp\_1lag | .998125 .0011374 -1.65 0.100 .9958983 1.000357

sp75\_507\_pp\_1lag | .9991079 .000669 -1.33 0.183 .9977975 1.00042

sp75\_511\_1\_pp\_1lag | 1 (omitted)

sp75\_511\_pp\_1lag | 1.000567 .0008526 0.66 0.506 .998897 1.002239

sp75\_512\_1\_pp\_1lag | .9953983 .0044811 -1.02 0.306 .9866542 1.00422

sp75\_512\_2\_pp\_1lag | 1.000572 .0002048 2.79 0.005 1.000171 1.000974

sp75\_512\_pp\_1lag | 1.000028 .0000642 0.44 0.663 .9999023 1.000154

sp75\_513\_1\_pp\_1lag | 1.000437 .0025289 0.17 0.863 .9954923 1.005405

sp75\_513\_pp\_1lag | .9994027 .0008876 -0.67 0.501 .9976645 1.001144

sp75\_514\_pp\_1lag | 1.000176 .0002362 0.74 0.457 .9997129 1.000639

sp75\_515\_pp\_1lag | .9995888 .000159 -2.59 0.010 .9992772 .9999004

sp75\_516\_1\_pp\_1lag | .997212 .0023953 -1.16 0.245 .9925282 1.001918

sp75\_516\_2\_pp\_1lag | .9999778 .0004093 -0.05 0.957 .9991759 1.00078

sp75\_516\_pp\_1lag | 1.000011 .0002749 0.04 0.967 .9994727 1.00055

sp75\_517\_1\_pp\_1lag | 1.003748 .0023861 1.57 0.116 .9990827 1.008436

sp75\_517\_pp\_1lag | 1.000005 .0000501 0.11 0.915 .9999072 1.000104

sp75\_518\_1\_pp\_1lag | 1.000348 .0002462 1.41 0.157 .9998658 1.000831

sp75\_518\_pp\_1lag | .9998641 .0001932 -0.70 0.482 .9994855 1.000243

sp75\_519\_pp\_1lag | 1.000923 .0042806 0.22 0.829 .9925686 1.009349

sp75\_520\_pp\_1lag | 1.000886 .000504 1.76 0.079 .9998982 1.001874

sp75\_523\_1\_pp\_1lag | .9977992 .0006688 -3.29 0.001 .9964892 .9991109

sp75\_523\_2\_pp\_1lag | .9998846 .0004757 -0.24 0.808 .9989526 1.000817

sp75\_523\_pp\_1lag | .9997383 .0006734 -0.39 0.698 .9984193 1.001059

sp75\_600\_1\_pp\_1lag | .9977117 .0018743 -1.22 0.223 .994045 1.001392

sp75\_600\_pp\_1lag | 1.001914 .0044921 0.43 0.670 .9931479 1.010757

sp75\_601\_1\_pp\_1lag | .9998246 .0002114 -0.83 0.407 .9994104 1.000239

sp75\_601\_2\_pp\_1lag | .9976057 .0030749 -0.78 0.437 .9915971 1.003651

sp75\_601\_3\_pp\_1lag | 1.000096 .003451 0.03 0.978 .9933547 1.006883

sp75\_601\_pp\_1lag | 1.000529 .0002579 2.05 0.040 1.000024 1.001034

sp75\_602\_pp\_1lag | .9996204 .0008299 -0.46 0.647 .997995 1.001248

sp75\_603\_pp\_1lag | .9993066 .0007247 -0.96 0.339 .9978872 1.000728

sp75\_604\_pp\_1lag | 1.000164 .0000716 2.29 0.022 1.000024 1.000305

sp75\_605\_pp\_1lag | 1.000398 .0003027 1.32 0.188 .9998051 1.000991

sp75\_606\_pp\_1lag | .9999562 .0001195 -0.37 0.714 .999722 1.00019

sp75\_607\_pp\_1lag | 1.000367 .0007766 0.47 0.637 .998846 1.00189

sp75\_700\_1\_pp\_1lag | .9976621 .0032629 -0.72 0.474 .9912874 1.004078

sp75\_700\_pp\_1lag | .9982904 .0010191 -1.68 0.094 .9962951 1.00029

sp75\_701\_1\_pp\_1lag | .9997603 .0010016 -0.24 0.811 .9977991 1.001725

sp75\_701\_2\_pp\_1lag | 1.001126 .0009967 1.13 0.258 .9991748 1.003082

sp75\_701\_3\_pp\_1lag | 1.00261 .0010758 2.43 0.015 1.000504 1.004721

sp75\_701\_4\_pp\_1lag | 1.007031 .0028202 2.50 0.012 1.001519 1.012574

sp75\_701\_5\_pp\_1lag | .9988335 .0020115 -0.58 0.562 .9948987 1.002784

sp75\_701\_pp\_1lag | 1.000057 .0001987 0.29 0.775 .9996674 1.000446

sp75\_702\_1\_pp\_1lag | 1.002424 .0025212 0.96 0.336 .9974951 1.007378

sp75\_702\_pp\_1lag | .9906692 .0099934 -0.93 0.353 .9712749 1.010451

sp75\_703\_1\_pp\_1lag | .9965479 .005603 -0.62 0.539 .9856266 1.00759

sp75\_703\_2\_pp\_1lag | 1.000119 .0076385 0.02 0.988 .9852589 1.015202

sp75\_703\_3\_pp\_1lag | 1.001235 .0012585 0.98 0.326 .9987715 1.003705

sp75\_703\_4\_pp\_1lag | .7877881 .0103558 -18.15 0.000 .7677503 .8083489

sp75\_703\_pp\_1lag | 1.000791 .0004632 1.71 0.087 .9998839 1.0017

sp75\_704\_pp\_1lag | .9977459 .0028883 -0.78 0.436 .992101 1.003423

sp75\_705\_1\_pp\_1lag | .998903 .0010959 -1.00 0.317 .9967574 1.001053

sp75\_705\_3\_pp\_1lag | 1.011853 .0060086 1.98 0.047 1.000145 1.023698

sp75\_705\_8\_pp\_1lag | 1.002141 .0035203 0.61 0.543 .995265 1.009065

sp75\_705\_pp\_1lag | 1.007126 .0037795 1.89 0.058 .9997457 1.014561

sp75\_706\_pp\_1lag | 1.00096 .0010584 0.91 0.364 .9988878 1.003036

sp75\_800\_2\_pp\_1lag | 1 (omitted)

sp75\_800\_3\_pp\_1lag | .9992028 .0017451 -0.46 0.648 .9957884 1.002629

sp75\_800\_4\_pp\_1lag | 1.001949 .0016436 1.19 0.235 .9987323 1.005175

sp75\_800\_pp\_1lag | .9978627 .00102 -2.09 0.036 .9958656 .9998638

sp75\_801\_pp\_1lag | .995382 .0031611 -1.46 0.145 .9892057 1.001597

sp75\_802\_pp\_1lag | .9991862 .0023023 -0.35 0.724 .9946839 1.003709

sp75\_803\_2\_pp\_1lag | .9979788 .0037735 -0.54 0.593 .9906103 1.005402

sp75\_803\_pp\_1lag | 1.000974 .001148 0.85 0.396 .9987267 1.003227

sp75\_804\_pp\_1lag | .9990874 .0019699 -0.46 0.643 .9952338 1.002956

sp75\_805\_pp\_1lag | 1.002317 .0017396 1.33 0.182 .998913 1.005732

sp75\_806\_pp\_1lag | 1 (omitted)

sp75\_807\_pp\_1lag | 1.000346 .0001641 2.11 0.035 1.000025 1.000668

sp75\_808\_pp\_1lag | .9990036 .0010223 -0.97 0.330 .9970019 1.001009

sp75\_809\_pp\_1lag | 1.000183 .0005837 0.31 0.753 .9990401 1.001328

sp75\_810\_pp\_1lag | 1.001166 .0007222 1.62 0.106 .9997518 1.002583

sp75\_811\_pp\_1lag | 1.000461 .0005273 0.87 0.382 .9994279 1.001495

sp75\_812\_pp\_1lag | 1.00068 .002018 0.34 0.736 .9967322 1.004643

sp75\_814\_pp\_1lag | .9998943 .0016801 -0.06 0.950 .9966068 1.003193

sp75\_815\_pp\_1lag | 1.004395 .0011627 3.79 0.000 1.002119 1.006677

sp75\_816\_pp\_1lag | .9996164 .0004033 -0.95 0.342 .9988263 1.000407

sp75\_818\_pp\_1lag | 1.000843 .0020328 0.41 0.678 .9968662 1.004835

sp75\_820\_pp\_1lag | 1.004134 .001191 3.48 0.001 1.001802 1.006471

sp75\_821\_pp\_1lag | 1.001595 .001363 1.17 0.241 .9989274 1.00427

sp75\_825\_pp\_1lag | 1.001616 .0016384 0.99 0.324 .9984098 1.004832

sp75\_827\_pp\_1lag | 1.002934 .0016898 1.74 0.082 .9996274 1.006251

sp75\_831\_pp\_1lag | .9951422 .0028597 -1.69 0.090 .989553 1.000763

sp75\_832\_pp\_1lag | .9905127 .0128821 -0.73 0.464 .9655834 1.016086

sp75\_834\_pp\_1lag | .4155678 .0256591 -14.22 0.000 .3682008 .4690284

sp75\_900\_2\_pp\_1lag | .9990951 .0025243 -0.36 0.720 .9941598 1.004055

sp75\_900\_3\_pp\_1lag | .9995724 .0011453 -0.37 0.709 .9973301 1.00182

sp75\_900\_4\_pp\_1lag | .9995927 .0004204 -0.97 0.333 .9987691 1.000417

sp75\_900\_pp\_1lag | .9997052 .0003385 -0.87 0.384 .999042 1.000369

sp75\_901\_pp\_1lag | .9987929 .0016168 -0.75 0.456 .995629 1.001967

sp75\_902\_1\_pp\_1lag | .9963539 .0048515 -0.75 0.453 .9868904 1.005908

sp75\_902\_2\_pp\_1lag | 1.000565 .0010908 0.52 0.605 .998429 1.002705

sp75\_902\_4\_pp\_1lag | 1.000439 .0007401 0.59 0.553 .9989895 1.001891

sp75\_902\_pp\_1lag | 1.00068 .0003968 1.71 0.087 .9999024 1.001458

sp75\_903\_pp\_1lag | 1.000118 .000593 0.20 0.842 .9989566 1.001281

sp75\_904\_pp\_1lag | .9999893 .0001749 -0.06 0.951 .9996465 1.000332

sp75\_905\_pp\_1lag | .9942947 .0021392 -2.66 0.008 .9901107 .9984963

sp75\_907\_pp\_1lag | 1.000426 .001129 0.38 0.706 .9982157 1.002641

sp77\_103\_pp\_1lag | .9998545 .0020708 -0.07 0.944 .995804 1.003922

sp77\_104\_pp\_1lag | .9923263 .0069756 -1.10 0.273 .9787482 1.006093

sp77\_1103\_pp\_1lag | .9996665 .0003691 -0.90 0.366 .9989434 1.00039

sp77\_1104\_pp\_1lag | .9999436 .0001391 -0.41 0.685 .999671 1.000216

sp77\_1106\_pp\_1lag | 1.001762 .0092836 0.19 0.849 .9837312 1.020124

sp77\_1111\_pp\_1lag | .9986167 .0040103 -0.34 0.730 .9907875 1.006508

sp77\_1112\_pp\_1lag | .9997648 .001061 -0.22 0.825 .9976874 1.001846

sp77\_1403\_pp\_1lag | 1.002107 .0020296 1.04 0.299 .9981369 1.006093

sp77\_1432\_pp\_1lag | 1.000401 .0041783 0.10 0.924 .9922453 1.008624

sp77\_1433\_pp\_1lag | 1.000533 .0020283 0.26 0.793 .996565 1.004516

sp77\_1434\_pp\_1lag | 1.001172 .0023753 0.49 0.621 .9965277 1.005839

sp77\_1437\_pp\_1lag | .9968871 .0023213 -1.34 0.181 .9923479 1.001447

sp77\_1438\_pp\_1lag | .9548251 .0288458 -1.53 0.126 .8999296 1.013069

sp77\_1605\_pp\_1lag | .9998178 .0001717 -1.06 0.289 .9994814 1.000154

sp77\_1606\_pp\_1lag | 1.000261 .0002623 0.99 0.320 .9997468 1.000775

sp77\_1710\_pp\_1lag | .9997269 .000459 -0.59 0.552 .9988277 1.000627

sp77\_1802\_pp\_1lag | .680489 .0187189 -13.99 0.000 .6447722 .7181844

sp77\_1906\_pp\_1lag | 1.00769 .004392 1.76 0.079 .9991185 1.016335

sp77\_1915\_pp\_1lag | 1.001791 .0016087 1.11 0.265 .9986433 1.00495

sp77\_1916\_pp\_1lag | 1.00205 .0020503 1.00 0.317 .9980394 1.006076

sp77\_200\_pp\_1lag | .9997357 .0003239 -0.82 0.415 .999101 1.000371

sp77\_202\_pp\_1lag | .999297 .0003638 -1.93 0.053 .9985843 1.00001

sp77\_203\_pp\_1lag | 1.001323 .002708 0.49 0.625 .9960298 1.006645

sp77\_204\_pp\_1lag | 1.000086 .0005116 0.17 0.866 .9990841 1.00109

sp77\_205\_pp\_1lag | 1.000459 .000155 2.96 0.003 1.000155 1.000763

sp77\_206\_pp\_1lag | 1.000857 .0007987 1.07 0.283 .9992924 1.002423

sp77\_207\_pp\_1lag | 1.00042 .0005945 0.71 0.479 .9992558 1.001586

sp77\_208\_pp\_1lag | 1.000458 .0002742 1.67 0.095 .9999203 1.000995

sp77\_210\_pp\_1lag | .9990753 .0010348 -0.89 0.372 .9970492 1.001106

sp77\_216\_pp\_1lag | 1.000551 .0005632 0.98 0.328 .9994477 1.001655

sp77\_305\_pp\_1lag | 1.022027 .0110423 2.02 0.044 1.000612 1.0439

sp77\_309\_pp\_1lag | 1.008905 .0052268 1.71 0.087 .9987129 1.019202

sp77\_314\_pp\_1lag | .9922907 .0084521 -0.91 0.364 .9758623 1.008996

sp77\_315\_pp\_1lag | .9797144 .0091728 -2.19 0.029 .9619 .9978588

sp77\_400\_pp\_1lag | 1.000016 .0002178 0.07 0.940 .9995895 1.000443

sp77\_401\_pp\_1lag | 1.000091 .0012663 0.07 0.943 .9976119 1.002576

sp77\_402\_pp\_1lag | .9990027 .000874 -1.14 0.254 .9972912 1.000717

sp77\_403\_1\_pp\_1lag | 1.001219 .0011447 1.07 0.287 .9989779 1.003465

sp77\_403\_2\_pp\_1lag | 1.007744 .0088091 0.88 0.378 .9906254 1.025158

sp77\_403\_pp\_1lag | 1.004139 .0034869 1.19 0.234 .9973277 1.010996

sp77\_404\_pp\_1lag | .9999196 .0001466 -0.55 0.583 .9996324 1.000207

sp77\_405\_pp\_1lag | 1.001176 .0015461 0.76 0.447 .9981501 1.004211

sp77\_408\_pp\_1lag | 1.000094 .0016071 0.06 0.953 .9969489 1.003249

sp77\_409\_pp\_1lag | .9882295 .0073744 -1.59 0.113 .9738812 1.002789

sp77\_410\_pp\_1lag | 1.000409 .0002923 1.40 0.162 .9998364 1.000982

sp77\_411\_pp\_1lag | .9893069 .0061107 -1.74 0.082 .9774024 1.001356

sp77\_412\_pp\_1lag | 1.000563 .0011526 0.49 0.625 .9983063 1.002824

sp77\_413\_pp\_1lag | 1 (omitted)

sp77\_500\_pp\_1lag | .9996618 .0020274 -0.17 0.868 .9956961 1.003643

sp77\_501\_pp\_1lag | .9987169 .0020441 -0.63 0.530 .9947185 1.002731

sp77\_502\_1\_pp\_1lag | .9977081 .0073561 -0.31 0.756 .9833941 1.01223

sp77\_502\_2\_pp\_1lag | 1.000991 .0010322 0.96 0.337 .9989698 1.003016

sp77\_502\_pp\_1lag | .9999157 .0001686 -0.50 0.617 .9995853 1.000246

sp77\_503\_1\_pp\_1lag | .9997138 .0037793 -0.08 0.940 .9923339 1.007149

sp77\_503\_pp\_1lag | 1.001814 .0026378 0.69 0.491 .9966575 1.006998

sp77\_504\_pp\_1lag | .9994364 .0007199 -0.78 0.434 .9980265 1.000848

sp77\_505\_pp\_1lag | .9999552 .0004121 -0.11 0.913 .9991478 1.000763

sp77\_506\_1\_pp\_1lag | 1.000157 .0004757 0.33 0.742 .9992249 1.001089

sp77\_506\_pp\_1lag | .9998424 .0007167 -0.22 0.826 .9984388 1.001248

sp77\_507\_pp\_1lag | 1.002295 .0022197 1.03 0.301 .9979535 1.006655

sp77\_508\_1\_pp\_1lag | .9913831 .0033354 -2.57 0.010 .9848673 .997942

sp77\_508\_pp\_1lag | .9989753 .0016489 -0.62 0.535 .9957487 1.002212

sp77\_509\_pp\_1lag | 1.000788 .0007479 1.05 0.292 .9993232 1.002255

sp77\_510\_pp\_1lag | 1.01511 .0111727 1.36 0.173 .9934461 1.037246

sp77\_511\_pp\_1lag | .9961534 .002951 -1.30 0.193 .9903863 1.001954

sp77\_512\_pp\_1lag | .9997552 .0003193 -0.77 0.443 .9991295 1.000381

sp77\_513\_pp\_1lag | 1.000129 .000588 0.22 0.826 .9989771 1.001282

sp77\_514\_pp\_1lag | .9932182 .0053855 -1.25 0.209 .9827188 1.00383

sp77\_515\_pp\_1lag | .9920522 .010716 -0.74 0.460 .97127 1.013279

sp77\_516\_pp\_1lag | .9995761 .0001847 -2.29 0.022 .9992142 .9999382

sp77\_600\_pp\_1lag | 1.004752 .0023673 2.01 0.044 1.000123 1.009402

sp77\_601\_pp\_1lag | .9993427 .0028225 -0.23 0.816 .993826 1.00489

sp77\_602\_pp\_1lag | 1.003433 .0027909 1.23 0.218 .9979776 1.008918

sp77\_603\_pp\_1lag | 1.009307 .0030818 3.03 0.002 1.003284 1.015365

sp77\_604\_pp\_1lag | 1.000176 .0022386 0.08 0.937 .9957977 1.004573

sp77\_605\_pp\_1lag | .9708425 .0142824 -2.01 0.044 .9432493 .9992429

sp77\_606\_1\_pp\_1lag | .9970135 .0052929 -0.56 0.573 .9866933 1.007442

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

sp77\_700\_1\_pp\_1lag | 1.00373 .003262 1.15 0.252 .9973564 1.010143

sp77\_700\_pp\_1lag | .9980423 .0021863 -0.89 0.371 .9937664 1.002337

sp77\_701\_1\_pp\_1lag | 1.002994 .0023103 1.30 0.194 .9984763 1.007533

sp77\_701\_2\_pp\_1lag | .9991582 .0021134 -0.40 0.691 .9950246 1.003309

sp77\_701\_3\_pp\_1lag | 1.001434 .0092814 0.15 0.877 .9834072 1.019791

sp77\_701\_4\_pp\_1lag | 1.001441 .0021892 0.66 0.510 .9971596 1.005741

sp77\_701\_pp\_1lag | .9994162 .0005525 -1.06 0.291 .9983338 1.0005

sp77\_703\_pp\_1lag | 1.002464 .0045278 0.54 0.586 .9936292 1.011378

sp77\_704\_1\_pp\_1lag | .9999683 .0011156 -0.03 0.977 .9977841 1.002157

sp77\_704\_8\_pp\_1lag | .9991596 .0030286 -0.28 0.782 .9932412 1.005113

sp77\_704\_9\_pp\_1lag | .995679 .0062388 -0.69 0.490 .983526 1.007982

sp77\_704\_pp\_1lag | .9888292 .0055668 -2.00 0.046 .9779785 .9998003

sp77\_705\_pp\_1lag | 1.001034 .0009804 1.05 0.292 .9991138 1.002957

sp77\_800\_1\_pp\_1lag | 1.000984 .0033648 0.29 0.770 .994411 1.007601

sp77\_800\_2\_pp\_1lag | 1.002668 .0020619 1.30 0.195 .9986347 1.006717

sp77\_800\_pp\_1lag | 1.004675 .0037587 1.25 0.212 .9973355 1.012069

sp77\_801\_pp\_1lag | .9901851 .0074158 -1.32 0.188 .9757566 1.004827

sp77\_802\_pp\_1lag | .9913809 .0046371 -1.85 0.064 .9823339 1.000511

sp77\_803\_pp\_1lag | .9937823 .0022596 -2.74 0.006 .9893634 .9982209

sp77\_804\_pp\_1lag | 1 (omitted)

sp77\_805\_pp\_1lag | .9946202 .0045964 -1.17 0.243 .985652 1.00367

sp77\_807\_1\_pp\_1lag | 1.000314 .0034823 0.09 0.928 .9935119 1.007163

sp77\_807\_2\_pp\_1lag | 1.001981 .0027535 0.72 0.471 .9965984 1.007392

sp77\_807\_3\_pp\_1lag | 1.001621 .0021129 0.77 0.443 .997488 1.00577

sp77\_807\_pp\_1lag | .9977937 .00313 -0.70 0.481 .9916779 1.003947

sp77\_808\_pp\_1lag | 1.005504 .0033272 1.66 0.097 .9990037 1.012046

sp77\_809\_pp\_1lag | .9991213 .0010562 -0.83 0.406 .9970534 1.001193

sp77\_810\_pp\_1lag | 1.002491 .002019 1.24 0.217 .9985416 1.006456

sp77\_900\_1\_pp\_1lag | 1.005123 .0028372 1.81 0.070 .9995778 1.010699

sp77\_900\_2\_pp\_1lag | 1.003652 .0017467 2.09 0.036 1.000234 1.007081

sp77\_900\_pp\_1lag | .9994315 .0021597 -0.26 0.792 .9952075 1.003673

sp77\_901\_1\_pp\_1lag | 1.002986 .0050508 0.59 0.554 .9931355 1.012934

sp77\_901\_pp\_1lag | 1.000457 .0019388 0.24 0.814 .9966642 1.004264

sp77\_902\_2\_pp\_1lag | 1.00273 .0033235 0.82 0.411 .9962367 1.009265

sp77\_902\_3\_pp\_1lag | .9964244 .005387 -0.66 0.508 .9859219 1.007039

sp77\_902\_pp\_1lag | 1.000255 .0026314 0.10 0.923 .995111 1.005426

sp77\_903\_pp\_1lag | 1.000041 .0021872 0.02 0.985 .9957632 1.004337

sp77\_904\_pp\_1lag | .999405 .0005435 -1.09 0.274 .9983404 1.000471

mine\_time | .9921982 .0074146 -1.05 0.295 .9777718 1.006837

onsite\_insp\_hours | .9998634 .0000541 -2.53 0.012 .9997575 .9999694

|

state |

1 | 1.49731 .2455776 2.46 0.014 1.085686 2.064997

2 | 2.12991 .2383745 6.76 0.000 1.710396 2.652319

3 | .6776431 .1252672 -2.11 0.035 .4716831 .9735355

4 | 1.029264 .1247937 0.24 0.812 .8115636 1.305363

5 | .9046009 .183583 -0.49 0.621 .6077305 1.34649

6 | .991883 .0672647 -0.12 0.904 .8684324 1.132882

7 | 1.256031 .2687147 1.07 0.287 .825838 1.91032

8 | .7026383 .106548 -2.33 0.020 .5219822 .9458188

9 | .7829049 .0967111 -1.98 0.048 .6145558 .9973709

10 | .978421 .1660206 -0.13 0.898 .701604 1.364456

11 | .8063627 .3819027 -0.45 0.650 .318707 2.040184

12 | 1.004052 .1397363 0.03 0.977 .7643506 1.318925

13 | 1.237173 .2455443 1.07 0.284 .8384758 1.825451

14 | .672071 .1554164 -1.72 0.086 .4271445 1.057439

15 | .7025233 .0609678 -4.07 0.000 .5926388 .8327821

17 | 1.176796 .2265057 0.85 0.398 .8069835 1.71608

|

time |

2007 | 1.20099 .0806457 2.73 0.006 1.052887 1.369925

2009 | .9362634 .0654834 -0.94 0.346 .8163267 1.073821

2010 | .9106833 .0681457 -1.25 0.211 .7864528 1.054538

2011 | .9209466 .0670279 -1.13 0.258 .7985142 1.062151

2012 | .962492 .076284 -0.48 0.630 .8240122 1.124244

2013 | .8704795 .0722797 -1.67 0.095 .7397408 1.024324

2014 | .7809077 .0676786 -2.85 0.004 .6589143 .9254873

2015 | .8561264 .0834715 -1.59 0.111 .7072069 1.036404

|

\_cons | 9.83e-06 7.55e-07 -150.07 0.000 8.45e-06 .0000114

ln(hours) | 1 (exposure)

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

/lnalpha | -2.572915 .3356581 -3.230793 -1.915037

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

alpha | .0763128 .025615 .0395262 .1473363

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

(est1 stored)

**. lrtest pois nbin, stats force**

Likelihood-ratio test LR chi2(16) = -8519.01

(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 | 3,333 -4639.57 -4375.86 312 9375.721 11282.55

pois | 6,253 -9569.622 -8635.363 328 17926.73 20137.71

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

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

**. summ MR spcpp2\_yhat**

Variable | Obs Mean Std. Dev. Min Max

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

MR | 6,253 1.881017 3.268911 0 37

spcpp2\_yhat | 6,253 1.900395 2.880255 1.30e-09 38.53015