. // Model SP.C.PP.4

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

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

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

note: sp71\_701\_pp\_c\_lag\_all omitted because of collinearity

note: sp75\_705\_3\_pp\_c\_lag\_all omitted because of collinearity

note: sp75\_834\_pp\_c\_lag\_all omitted because of collinearity

note: sp77\_606\_pp\_c\_lag\_all omitted because of collinearity

note: sp77\_801\_pp\_c\_lag\_all omitted because of collinearity

Iteration 0: log pseudolikelihood = -11886.328

Iteration 1: log pseudolikelihood = -11204.899

Iteration 2: log pseudolikelihood = -11196.269

Iteration 3: log pseudolikelihood = -11196.223

Iteration 4: log pseudolikelihood = -11196.213

Iteration 5: log pseudolikelihood = -11196.211

Iteration 6: log pseudolikelihood = -11196.211

Iteration 7: log pseudolikelihood = -11196.211

Iteration 8: log pseudolikelihood = -11196.21

Generalized linear models No. of obs = 13,797

Optimization : ML Residual df = 13,431

Scale parameter = 1

Deviance = 11146.76995 (1/df) Deviance = .8299285

Pearson = 117635.2796 (1/df) Pearson = 8.75849

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

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

AIC = 1.676047

Log pseudolikelihood = -11196.2105 BIC = -116880.3

(Std. Err. adjusted for 801 clusters in mineid)

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| Robust

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

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

sp47\_41\_pp\_c\_lag\_all | 1.001229 .0005194 2.37 0.018 1.000211 1.002248

sp47\_42\_pp\_c\_lag\_all | .9968264 .0018211 -1.74 0.082 .9932636 1.000402

sp47\_44\_pp\_c\_lag\_all | .9988352 .000719 -1.62 0.105 .997427 1.000245

sp48\_11\_pp\_c\_lag\_all | 1.000196 .0004816 0.41 0.684 .9992524 1.00114

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

sp48\_25\_pp\_c\_lag\_all | 1.000185 .0008138 0.23 0.820 .9985917 1.001782

sp48\_26\_pp\_c\_lag\_all | 1.003865 .0013541 2.86 0.004 1.001215 1.006523

sp48\_27\_pp\_c\_lag\_all | 1.000686 .0007954 0.86 0.388 .9991283 1.002246

sp48\_28\_pp\_c\_lag\_all | .9978268 .0010454 -2.08 0.038 .99578 .9998779

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

sp48\_5\_pp\_c\_lag\_all | 1.000132 .001532 0.09 0.931 .9971339 1.003139

sp48\_6\_pp\_c\_lag\_all | 1.000529 .000484 1.09 0.274 .9995813 1.001479

sp48\_7\_pp\_c\_lag\_all | 1.001118 .0005019 2.23 0.026 1.000135 1.002102

sp48\_8\_pp\_c\_lag\_all | .9996252 .0009691 -0.39 0.699 .9977277 1.001526

sp71\_701\_pp\_c\_lag\_all | 1 (omitted)

sp72\_503\_pp\_c\_lag\_all | .9996166 .0008112 -0.47 0.637 .998028 1.001208

sp72\_610\_pp\_c\_lag\_all | .9988763 .0039646 -0.28 0.777 .9911359 1.006677

sp72\_620\_pp\_c\_lag\_all | 1.009055 .003018 3.01 0.003 1.003157 1.014987

sp72\_630\_pp\_c\_lag\_all | .9999975 .0000871 -0.03 0.977 .9998268 1.000168

sp75\_100\_pp\_c\_lag\_all | 1.00159 .0021593 0.74 0.461 .9973664 1.005831

sp75\_1001\_1\_pp\_c\_lag\_all | 1.001404 .0036776 0.38 0.702 .9942217 1.008638

sp75\_1001\_pp\_c\_lag\_all | 1.005296 .0039374 1.35 0.177 .9976081 1.013043

sp75\_1003\_1\_pp\_c\_lag\_all | .9978163 .0016604 -1.31 0.189 .9945673 1.001076

sp75\_1100\_2\_pp\_c\_lag\_all | 1.000087 .000074 1.18 0.237 .9999424 1.000232

sp75\_1101\_20\_pp\_c\_lag\_all | 1.002969 .0022681 1.31 0.190 .998533 1.007424

sp75\_1102\_pp\_c\_lag\_all | .9997947 .0007874 -0.26 0.794 .9982526 1.001339

sp75\_1103\_4\_pp\_c\_lag\_all | .999978 .0001395 -0.16 0.874 .9997045 1.000251

sp75\_1104\_pp\_c\_lag\_all | .998985 .0005107 -1.99 0.047 .9979846 .9999864

sp75\_1106\_2\_pp\_c\_lag\_all | 1.000216 .0003801 0.57 0.569 .9994715 1.000962

sp75\_1106\_3\_pp\_c\_lag\_all | 1.00019 .0001356 1.40 0.160 .9999246 1.000456

sp75\_1106\_4\_pp\_c\_lag\_all | 1.000584 .0012354 0.47 0.637 .9981652 1.003008

sp75\_1106\_5\_pp\_c\_lag\_all | .9992565 .0005072 -1.47 0.143 .9982629 1.000251

sp75\_1106\_6\_pp\_c\_lag\_all | 1.004803 .0064631 0.74 0.456 .9922148 1.01755

sp75\_1106\_pp\_c\_lag\_all | 1.001479 .0009114 1.62 0.104 .9996946 1.003267

sp75\_1107\_14\_pp\_c\_lag\_all | 1.008188 .0030888 2.66 0.008 1.002152 1.01426

sp75\_1400\_1\_pp\_c\_lag\_all | .9966246 .0022158 -1.52 0.128 .9922912 1.000977

sp75\_1400\_2\_pp\_c\_lag\_all | .9967791 .0032899 -0.98 0.328 .9903519 1.003248

sp75\_1400\_3\_pp\_c\_lag\_all | .999727 .0005077 -0.54 0.591 .9987324 1.000723

sp75\_1400\_4\_pp\_c\_lag\_all | .9974192 .0013368 -1.93 0.054 .9948027 1.000043

sp75\_1400\_pp\_c\_lag\_all | 1.000684 .0005949 1.15 0.250 .9995184 1.00185

sp75\_1401\_1\_pp\_c\_lag\_all | .9996326 .0060699 -0.06 0.952 .9878063 1.011601

sp75\_1401\_pp\_c\_lag\_all | 1.000346 .0030458 0.11 0.910 .9943938 1.006333

sp75\_1403\_10\_pp\_c\_lag\_all | 1.0003 .0001397 2.15 0.031 1.000027 1.000574

sp75\_1403\_11\_pp\_c\_lag\_all | .9972181 .0018807 -1.48 0.140 .9935389 1.000911

sp75\_1403\_3\_pp\_c\_lag\_all | .9924079 .0022424 -3.37 0.001 .9880226 .9968126

sp75\_1403\_4\_pp\_c\_lag\_all | 1.006793 .0038978 1.75 0.080 .9991827 1.014462

sp75\_1403\_5\_pp\_c\_lag\_all | .9999657 .0000732 -0.47 0.640 .9998223 1.000109

sp75\_1403\_6\_pp\_c\_lag\_all | .9999588 .0000746 -0.55 0.581 .9998126 1.000105

sp75\_1403\_7\_pp\_c\_lag\_all | 1.000587 .0003997 1.47 0.142 .9998041 1.001371

sp75\_1403\_8\_pp\_c\_lag\_all | .9999619 .0000715 -0.53 0.594 .9998218 1.000102

sp75\_1403\_9\_pp\_c\_lag\_all | 1.000705 .0005995 1.18 0.240 .9995303 1.00188

sp75\_1404\_1\_pp\_c\_lag\_all | .9852993 .0031058 -4.70 0.000 .9792308 .9914055

sp75\_1404\_pp\_c\_lag\_all | .9995897 .0023136 -0.18 0.859 .9950654 1.004135

sp75\_1405\_1\_pp\_c\_lag\_all | .9958185 .0014243 -2.93 0.003 .9930308 .998614

sp75\_1405\_pp\_c\_lag\_all | .9997863 .0001688 -1.27 0.206 .9994554 1.000117

sp75\_1431\_pp\_c\_lag\_all | .986366 .0109232 -1.24 0.215 .9651877 1.008009

sp75\_1432\_pp\_c\_lag\_all | 1.001048 .0020312 0.52 0.606 .9970746 1.005037

sp75\_1433\_pp\_c\_lag\_all | .999248 .001017 -0.74 0.460 .9972568 1.001243

sp75\_1434\_pp\_c\_lag\_all | .9991318 .001013 -0.86 0.392 .9971484 1.001119

sp75\_1435\_pp\_c\_lag\_all | .9996419 .0035647 -0.10 0.920 .9926795 1.006653

sp75\_1437\_pp\_c\_lag\_all | 1.00442 .0045081 0.98 0.326 .9956226 1.013294

sp75\_150\_pp\_c\_lag\_all | .9996763 .0024704 -0.13 0.896 .9948462 1.00453

sp75\_151\_pp\_c\_lag\_all | 1.001373 .003157 0.44 0.663 .9952043 1.00758

sp75\_153\_pp\_c\_lag\_all | 1.008747 .0030481 2.88 0.004 1.00279 1.014739

sp75\_156\_pp\_c\_lag\_all | .9997464 .0030936 -0.08 0.935 .9937013 1.005828

sp75\_160\_pp\_c\_lag\_all | .988283 .0065132 -1.79 0.074 .9755995 1.001131

sp75\_1600\_2\_pp\_c\_lag\_all | 1.000125 .0002373 0.53 0.597 .9996603 1.00059

sp75\_1712\_10\_pp\_c\_lag\_all | .9988389 .0007421 -1.56 0.118 .9973854 1.000294

sp75\_1712\_6\_pp\_c\_lag\_all | 1.000578 .0006548 0.88 0.377 .9992957 1.001862

sp75\_1720\_pp\_c\_lag\_all | .9994373 .000408 -1.38 0.168 .998638 1.000237

sp75\_1721\_pp\_c\_lag\_all | .9905422 .0027559 -3.42 0.001 .9851555 .9959584

sp75\_1725\_pp\_c\_lag\_all | 1.000042 .0000292 1.44 0.151 .9999847 1.000099

sp75\_1726\_pp\_c\_lag\_all | 1.001902 .000802 2.37 0.018 1.000331 1.003475

sp75\_1727\_pp\_c\_lag\_all | .9982457 .0030623 -0.57 0.567 .9922618 1.004266

sp75\_1728\_pp\_c\_lag\_all | 1.002075 .0018131 1.15 0.252 .998528 1.005635

sp75\_1729\_pp\_c\_lag\_all | .995601 .0016385 -2.68 0.007 .9923947 .9988176

sp75\_1730\_pp\_c\_lag\_all | 1.002579 .001241 2.08 0.037 1.000149 1.005014

sp75\_1731\_pp\_c\_lag\_all | 1.000034 .0000189 1.77 0.076 .9999965 1.000071

sp75\_1903\_pp\_c\_lag\_all | 1.001148 .0004898 2.35 0.019 1.000189 1.002109

sp75\_1909\_pp\_c\_lag\_all | .999955 .0000624 -0.72 0.471 .9998326 1.000077

sp75\_1910\_pp\_c\_lag\_all | 1.000216 .0001022 2.11 0.035 1.000015 1.000416

sp75\_1911\_pp\_c\_lag\_all | .9998226 .0001343 -1.32 0.187 .9995595 1.000086

sp75\_1912\_pp\_c\_lag\_all | 1.002311 .0011171 2.07 0.038 1.000124 1.004503

sp75\_1913\_pp\_c\_lag\_all | 1.000259 .0013695 0.19 0.850 .9975783 1.002947

sp75\_1914\_pp\_c\_lag\_all | .999871 .000066 -1.95 0.051 .9997416 1

sp75\_1915\_pp\_c\_lag\_all | 1.001391 .0009732 1.43 0.153 .9994855 1.0033

sp75\_202\_pp\_c\_lag\_all | .9999846 .0000126 -1.22 0.222 .9999598 1.000009

sp75\_208\_pp\_c\_lag\_all | 1.000021 .0001622 0.13 0.898 .9997029 1.000339

sp75\_211\_pp\_c\_lag\_all | 1.000082 .0001822 0.45 0.654 .9997247 1.000439

sp75\_212\_pp\_c\_lag\_all | 1.000074 .0003609 0.20 0.838 .9993665 1.000781

sp75\_214\_pp\_c\_lag\_all | .9998892 .0003813 -0.29 0.771 .9991421 1.000637

sp75\_312\_pp\_c\_lag\_all | .9997961 .0002918 -0.70 0.485 .9992244 1.000368

sp75\_320\_pp\_c\_lag\_all | .9997498 .0001903 -1.31 0.189 .9993768 1.000123

sp75\_324\_pp\_c\_lag\_all | .9986694 .0007065 -1.88 0.060 .9972858 1.000055

sp75\_337\_pp\_c\_lag\_all | 1.000034 .0002894 0.12 0.907 .9994669 1.000601

sp75\_340\_pp\_c\_lag\_all | .9999683 .0001007 -0.31 0.753 .999771 1.000166

sp75\_341\_pp\_c\_lag\_all | .9995984 .0051177 -0.08 0.937 .9896182 1.009679

sp75\_342\_pp\_c\_lag\_all | .9999486 .0000569 -0.90 0.366 .9998371 1.00006

sp75\_344\_pp\_c\_lag\_all | 1.000521 .0007113 0.73 0.464 .999128 1.001916

sp75\_352\_pp\_c\_lag\_all | .9997411 .0005792 -0.45 0.655 .9986066 1.000877

sp75\_382\_pp\_c\_lag\_all | .9993878 .0005362 -1.14 0.254 .9983373 1.000439

sp75\_503\_pp\_c\_lag\_all | 1.000001 .0000225 0.04 0.967 .9999568 1.000045

sp75\_504\_pp\_c\_lag\_all | 1.002994 .0014782 2.03 0.043 1.000101 1.005896

sp75\_505\_pp\_c\_lag\_all | 1.003015 .0015814 1.91 0.056 .9999207 1.00612

sp75\_506\_1\_pp\_c\_lag\_all | 1.002422 .0012568 1.93 0.054 .9999616 1.004888

sp75\_506\_pp\_c\_lag\_all | .9976861 .0008782 -2.63 0.008 .9959663 .9994089

sp75\_507\_pp\_c\_lag\_all | .9996921 .0003752 -0.82 0.412 .998957 1.000428

sp75\_511\_1\_pp\_c\_lag\_all | 1.000424 .0071532 0.06 0.953 .9865014 1.014542

sp75\_511\_pp\_c\_lag\_all | 1.000356 .0006369 0.56 0.577 .9991081 1.001605

sp75\_512\_1\_pp\_c\_lag\_all | 1.005508 .0037229 1.48 0.138 .9982376 1.012831

sp75\_512\_2\_pp\_c\_lag\_all | 1.000051 .0001983 0.25 0.799 .999662 1.000439

sp75\_512\_pp\_c\_lag\_all | 1.000002 .0000457 0.05 0.958 .9999128 1.000092

sp75\_513\_1\_pp\_c\_lag\_all | 1.002845 .0016463 1.73 0.084 .9996233 1.006077

sp75\_513\_pp\_c\_lag\_all | .9991085 .0007527 -1.18 0.236 .9976342 1.000585

sp75\_514\_pp\_c\_lag\_all | 1.000142 .0001294 1.10 0.272 .9998884 1.000396

sp75\_515\_pp\_c\_lag\_all | .9997472 .0001046 -2.42 0.016 .9995422 .9999523

sp75\_516\_1\_pp\_c\_lag\_all | .9992598 .0028212 -0.26 0.793 .9937455 1.004805

sp75\_516\_2\_pp\_c\_lag\_all | .9993997 .0003338 -1.80 0.072 .9987457 1.000054

sp75\_516\_pp\_c\_lag\_all | .9999083 .0001826 -0.50 0.615 .9995505 1.000266

sp75\_517\_1\_pp\_c\_lag\_all | .998925 .0020493 -0.52 0.600 .9949164 1.00295

sp75\_517\_pp\_c\_lag\_all | 1.000002 .0000252 0.08 0.940 .9999524 1.000051

sp75\_518\_1\_pp\_c\_lag\_all | .9997072 .0003175 -0.92 0.357 .9990851 1.00033

sp75\_518\_pp\_c\_lag\_all | .9999802 .0001772 -0.11 0.911 .9996328 1.000328

sp75\_519\_pp\_c\_lag\_all | .9858788 .0042444 -3.30 0.001 .977595 .9942328

sp75\_520\_pp\_c\_lag\_all | .9997106 .0003128 -0.93 0.355 .9990977 1.000324

sp75\_523\_1\_pp\_c\_lag\_all | .9993551 .0004335 -1.49 0.137 .9985059 1.000205

sp75\_523\_2\_pp\_c\_lag\_all | .9993179 .0002858 -2.39 0.017 .9987579 .9998782

sp75\_523\_pp\_c\_lag\_all | 1.000078 .0004162 0.19 0.851 .9992627 1.000894

sp75\_600\_1\_pp\_c\_lag\_all | .9996713 .0020389 -0.16 0.872 .9956832 1.003675

sp75\_600\_pp\_c\_lag\_all | 1.001281 .0030708 0.42 0.676 .9952804 1.007318

sp75\_601\_1\_pp\_c\_lag\_all | .9999073 .000146 -0.64 0.525 .9996211 1.000194

sp75\_601\_2\_pp\_c\_lag\_all | 1.000925 .0022009 0.42 0.674 .9966202 1.005248

sp75\_601\_3\_pp\_c\_lag\_all | .9994333 .0018356 -0.31 0.758 .9958421 1.003037

sp75\_601\_pp\_c\_lag\_all | 1.000032 .000192 0.17 0.868 .9996555 1.000408

sp75\_602\_pp\_c\_lag\_all | .9997076 .0004827 -0.61 0.545 .998762 1.000654

sp75\_603\_pp\_c\_lag\_all | .9996436 .0005246 -0.68 0.497 .998616 1.000672

sp75\_604\_pp\_c\_lag\_all | .9999665 .0000478 -0.70 0.483 .9998729 1.00006

sp75\_605\_pp\_c\_lag\_all | .9998148 .0002321 -0.80 0.425 .9993601 1.00027

sp75\_606\_pp\_c\_lag\_all | 1.000044 .0000747 0.59 0.557 .9998974 1.00019

sp75\_607\_pp\_c\_lag\_all | .9989378 .0006878 -1.54 0.123 .9975907 1.000287

sp75\_700\_1\_pp\_c\_lag\_all | .9967753 .0019804 -1.63 0.104 .9929013 1.000664

sp75\_700\_pp\_c\_lag\_all | .9997938 .0006243 -0.33 0.741 .9985709 1.001018

sp75\_701\_1\_pp\_c\_lag\_all | 1.000283 .0006542 0.43 0.666 .9990012 1.001566

sp75\_701\_2\_pp\_c\_lag\_all | .9996 .0009908 -0.40 0.686 .9976599 1.001544

sp75\_701\_3\_pp\_c\_lag\_all | 1.000606 .0007487 0.81 0.418 .9991394 1.002074

sp75\_701\_4\_pp\_c\_lag\_all | 1.003054 .0027539 1.11 0.267 .9976706 1.008466

sp75\_701\_pp\_c\_lag\_all | 1.000064 .0001478 0.43 0.667 .999774 1.000353

sp75\_702\_1\_pp\_c\_lag\_all | .9881149 .0034865 -3.39 0.001 .9813051 .994972

sp75\_702\_pp\_c\_lag\_all | 1.004592 .0039423 1.17 0.243 .9968949 1.012348

sp75\_703\_1\_pp\_c\_lag\_all | .9904775 .0057757 -1.64 0.101 .9792218 1.001863

sp75\_703\_2\_pp\_c\_lag\_all | 1.007135 .0032759 2.19 0.029 1.000734 1.013576

sp75\_703\_3\_pp\_c\_lag\_all | 1.001698 .0008397 2.02 0.043 1.000053 1.003345

sp75\_703\_4\_pp\_c\_lag\_all | 1.023436 .0063938 3.71 0.000 1.01098 1.036044

sp75\_703\_pp\_c\_lag\_all | 1.000693 .0003531 1.96 0.050 1.000001 1.001385

sp75\_704\_pp\_c\_lag\_all | .9969164 .0021364 -1.44 0.150 .992738 1.001113

sp75\_705\_1\_pp\_c\_lag\_all | 1.000676 .0011332 0.60 0.550 .9984579 1.0029

sp75\_705\_3\_pp\_c\_lag\_all | 1 (omitted)

sp75\_705\_8\_pp\_c\_lag\_all | .9904049 .0060845 -1.57 0.117 .978551 1.002402

sp75\_705\_pp\_c\_lag\_all | .9993689 .002504 -0.25 0.801 .9944732 1.004289

sp75\_706\_pp\_c\_lag\_all | .9999516 .0010073 -0.05 0.962 .9979792 1.001928

sp75\_800\_2\_pp\_c\_lag\_all | .9747364 .0029942 -8.33 0.000 .9688855 .9806226

sp75\_800\_3\_pp\_c\_lag\_all | .9991753 .0010219 -0.81 0.420 .9971745 1.00118

sp75\_800\_4\_pp\_c\_lag\_all | 1.001219 .001297 0.94 0.347 .9986798 1.003764

sp75\_800\_pp\_c\_lag\_all | 1.00027 .0006325 0.43 0.669 .9990314 1.001511

sp75\_801\_pp\_c\_lag\_all | 1.001657 .0021442 0.77 0.439 .9974632 1.005868

sp75\_802\_pp\_c\_lag\_all | 1.000825 .0020893 0.39 0.693 .9967381 1.004928

sp75\_803\_2\_pp\_c\_lag\_all | .9783517 .0014136 -15.15 0.000 .975585 .9811263

sp75\_803\_pp\_c\_lag\_all | 1.00025 .0007034 0.36 0.722 .9988729 1.00163

sp75\_812\_pp\_c\_lag\_all | 1.00004 .0015697 0.03 0.980 .9969684 1.003121

sp75\_814\_pp\_c\_lag\_all | 1.000119 .0014057 0.08 0.933 .9973677 1.002878

sp75\_815\_pp\_c\_lag\_all | .9998249 .0010741 -0.16 0.871 .997722 1.001932

sp75\_816\_pp\_c\_lag\_all | .999402 .0002729 -2.19 0.029 .9988672 .9999371

sp75\_818\_pp\_c\_lag\_all | .993957 .0020632 -2.92 0.003 .9899213 .9980091

sp75\_820\_pp\_c\_lag\_all | .9997483 .0010267 -0.25 0.806 .997738 1.001763

sp75\_821\_pp\_c\_lag\_all | 1.000422 .0008113 0.52 0.603 .9988336 1.002014

sp75\_825\_pp\_c\_lag\_all | .9995539 .0009799 -0.46 0.649 .9976352 1.001476

sp75\_827\_pp\_c\_lag\_all | 1.000258 .0013523 0.19 0.849 .9976109 1.002912

sp75\_831\_pp\_c\_lag\_all | 1.007039 .0020221 3.49 0.000 1.003083 1.01101

sp75\_832\_pp\_c\_lag\_all | 1.002178 .0075015 0.29 0.771 .9875827 1.016989

sp75\_834\_pp\_c\_lag\_all | 1 (omitted)

sp75\_900\_2\_pp\_c\_lag\_all | .9904891 .0017008 -5.57 0.000 .9871612 .9938283

sp75\_900\_3\_pp\_c\_lag\_all | 1.001424 .000721 1.98 0.048 1.000012 1.002839

sp75\_900\_4\_pp\_c\_lag\_all | 1.000011 .0002698 0.04 0.968 .9994821 1.00054

sp75\_900\_pp\_c\_lag\_all | .9998987 .0002073 -0.49 0.625 .9994926 1.000305

sp75\_901\_pp\_c\_lag\_all | .9996509 .000935 -0.37 0.709 .9978201 1.001485

sp75\_902\_1\_pp\_c\_lag\_all | 1.002919 .0031723 0.92 0.357 .996721 1.009156

sp75\_902\_2\_pp\_c\_lag\_all | 1.000112 .0002266 0.50 0.620 .9996682 1.000556

sp75\_902\_4\_pp\_c\_lag\_all | 1.000245 .0005388 0.46 0.649 .9991897 1.001302

sp75\_902\_pp\_c\_lag\_all | 1.000297 .000266 1.12 0.264 .9997758 1.000819

sp75\_903\_pp\_c\_lag\_all | .9996262 .0003475 -1.08 0.282 .9989454 1.000307

sp75\_904\_pp\_c\_lag\_all | 1.000172 .0000715 2.40 0.016 1.000031 1.000312

sp75\_905\_pp\_c\_lag\_all | .9962746 .0025555 -1.46 0.146 .9912784 1.001296

sp75\_907\_pp\_c\_lag\_all | .9993979 .0004991 -1.21 0.228 .9984201 1.000377

sp77\_103\_pp\_c\_lag\_all | .9977295 .0014356 -1.58 0.114 .9949198 1.000547

sp77\_104\_pp\_c\_lag\_all | .9835398 .0033822 -4.83 0.000 .9769332 .9901911

sp77\_1103\_pp\_c\_lag\_all | 1.000189 .0001879 1.01 0.315 .9998207 1.000557

sp77\_1104\_pp\_c\_lag\_all | .9999762 .0000781 -0.30 0.761 .9998231 1.000129

sp77\_1106\_pp\_c\_lag\_all | .9921583 .0049681 -1.57 0.116 .9824686 1.001943

sp77\_1111\_pp\_c\_lag\_all | 1.00022 .0035286 0.06 0.950 .9933279 1.00716

sp77\_1112\_pp\_c\_lag\_all | .999866 .0009876 -0.14 0.892 .9979323 1.001803

sp77\_1403\_pp\_c\_lag\_all | .999966 .0013598 -0.02 0.980 .9973045 1.002635

sp77\_1432\_pp\_c\_lag\_all | .9891398 .0030537 -3.54 0.000 .9831728 .995143

sp77\_1433\_pp\_c\_lag\_all | 1.000069 .0028871 0.02 0.981 .9944259 1.005743

sp77\_1434\_pp\_c\_lag\_all | .9984673 .001632 -0.94 0.348 .9952737 1.001671

sp77\_1437\_pp\_c\_lag\_all | .9987984 .0017279 -0.70 0.487 .9954175 1.002191

sp77\_1438\_pp\_c\_lag\_all | .9969156 .0172627 -0.18 0.858 .9636491 1.031331

sp77\_1605\_pp\_c\_lag\_all | 1.000196 .000125 1.57 0.117 .9999512 1.000441

sp77\_1606\_pp\_c\_lag\_all | .999847 .0001539 -0.99 0.320 .9995454 1.000149

sp77\_1710\_pp\_c\_lag\_all | 1.000506 .0002878 1.76 0.078 .9999424 1.00107

sp77\_1802\_pp\_c\_lag\_all | .997813 .0032709 -0.67 0.504 .9914227 1.004244

sp77\_1906\_pp\_c\_lag\_all | 1.001569 .0032589 0.48 0.630 .995202 1.007977

sp77\_1915\_pp\_c\_lag\_all | .9935048 .0017803 -3.64 0.000 .9900215 .9970003

sp77\_1916\_pp\_c\_lag\_all | 1.002015 .0015988 1.26 0.207 .9988864 1.005154

sp77\_200\_pp\_c\_lag\_all | 1.000119 .0001042 1.15 0.252 .9999153 1.000324

sp77\_202\_pp\_c\_lag\_all | .9996639 .0001414 -2.38 0.017 .9993869 .999941

sp77\_203\_pp\_c\_lag\_all | .9988416 .0012306 -0.94 0.347 .9964325 1.001257

sp77\_204\_pp\_c\_lag\_all | 1.000014 .0002598 0.05 0.957 .9995049 1.000523

sp77\_205\_pp\_c\_lag\_all | .9999801 .0000914 -0.22 0.828 .999801 1.000159

sp77\_206\_pp\_c\_lag\_all | 1.000866 .0006064 1.43 0.153 .9996786 1.002056

sp77\_207\_pp\_c\_lag\_all | 1.000575 .0004543 1.27 0.206 .9996846 1.001465

sp77\_208\_pp\_c\_lag\_all | 1.000315 .0001641 1.92 0.055 .9999936 1.000637

sp77\_210\_pp\_c\_lag\_all | 1.001307 .0007461 1.75 0.080 .9998461 1.002771

sp77\_216\_pp\_c\_lag\_all | .9999373 .0003257 -0.19 0.847 .9992991 1.000576

sp77\_305\_pp\_c\_lag\_all | .9895121 .0048613 -2.15 0.032 .9800298 .9990861

sp77\_309\_pp\_c\_lag\_all | .9865421 .0067409 -1.98 0.047 .9734182 .999843

sp77\_314\_pp\_c\_lag\_all | .9974687 .0077681 -0.33 0.745 .982359 1.012811

sp77\_315\_pp\_c\_lag\_all | .9920036 .0064092 -1.24 0.214 .979521 1.004645

sp77\_400\_pp\_c\_lag\_all | .9999561 .0000813 -0.54 0.589 .9997968 1.000115

sp77\_401\_pp\_c\_lag\_all | .9999654 .0006243 -0.06 0.956 .9987425 1.00119

sp77\_402\_pp\_c\_lag\_all | .9991384 .0005158 -1.67 0.095 .998128 1.00015

sp77\_403\_1\_pp\_c\_lag\_all | .9990693 .0009323 -1.00 0.318 .9972437 1.000898

sp77\_403\_2\_pp\_c\_lag\_all | .9901215 .0047188 -2.08 0.037 .9809158 .9994135

sp77\_403\_pp\_c\_lag\_all | .9992028 .0025934 -0.31 0.759 .9941329 1.004299

sp77\_404\_pp\_c\_lag\_all | .9997988 .0000965 -2.09 0.037 .9996097 .9999879

sp77\_405\_pp\_c\_lag\_all | .9998306 .0010547 -0.16 0.872 .9977656 1.0019

sp77\_408\_pp\_c\_lag\_all | 1.000508 .0014057 0.36 0.718 .9977565 1.003267

sp77\_409\_pp\_c\_lag\_all | 1.001634 .0033734 0.48 0.628 .9950435 1.008267

sp77\_410\_pp\_c\_lag\_all | 1.000097 .0001988 0.49 0.626 .9997073 1.000486

sp77\_411\_pp\_c\_lag\_all | .9975688 .0088945 -0.27 0.785 .9802874 1.015155

sp77\_412\_pp\_c\_lag\_all | 1.000097 .0008943 0.11 0.914 .9983457 1.001851

sp77\_413\_pp\_c\_lag\_all | 1.000331 .0050558 0.07 0.948 .9904711 1.01029

sp77\_500\_pp\_c\_lag\_all | .9985702 .0014012 -1.02 0.308 .9958276 1.00132

sp77\_501\_pp\_c\_lag\_all | 1.002345 .0009296 2.53 0.012 1.000525 1.004169

sp77\_502\_1\_pp\_c\_lag\_all | 1.003661 .0041268 0.89 0.374 .9956055 1.011782

sp77\_502\_2\_pp\_c\_lag\_all | 1.001131 .0007273 1.56 0.120 .9997067 1.002558

sp77\_502\_pp\_c\_lag\_all | .999936 .0001079 -0.59 0.553 .9997246 1.000148

sp77\_503\_1\_pp\_c\_lag\_all | 1.002186 .0031276 0.70 0.484 .9960746 1.008335

sp77\_503\_pp\_c\_lag\_all | .9992617 .0016265 -0.45 0.650 .9960789 1.002455

sp77\_504\_pp\_c\_lag\_all | .9999487 .0004499 -0.11 0.909 .9990672 1.000831

sp77\_505\_pp\_c\_lag\_all | .9998057 .0002454 -0.79 0.429 .9993248 1.000287

sp77\_506\_1\_pp\_c\_lag\_all | 1.000084 .0002499 0.34 0.737 .9995944 1.000574

sp77\_506\_pp\_c\_lag\_all | .9996754 .0002987 -1.09 0.277 .9990902 1.000261

sp77\_507\_pp\_c\_lag\_all | 1.000736 .0012534 0.59 0.557 .9982825 1.003196

sp77\_508\_1\_pp\_c\_lag\_all | 1.003922 .0023181 1.70 0.090 .9993894 1.008476

sp77\_508\_pp\_c\_lag\_all | .9997917 .0011227 -0.19 0.853 .9975936 1.001995

sp77\_509\_pp\_c\_lag\_all | .9994355 .0004583 -1.23 0.218 .9985377 1.000334

sp77\_510\_pp\_c\_lag\_all | .9958687 .0018843 -2.19 0.029 .9921823 .9995688

sp77\_511\_pp\_c\_lag\_all | .9983749 .0022943 -0.71 0.479 .9938883 1.002882

sp77\_512\_pp\_c\_lag\_all | .9998479 .0002087 -0.73 0.466 .999439 1.000257

sp77\_513\_pp\_c\_lag\_all | 1.000388 .0004596 0.84 0.399 .9994872 1.001289

sp77\_514\_pp\_c\_lag\_all | .9960557 .0027922 -1.41 0.159 .9905981 1.001543

sp77\_515\_pp\_c\_lag\_all | .6811127 .0253275 -10.33 0.000 .6332376 .7326074

sp77\_516\_pp\_c\_lag\_all | .9999242 .0001306 -0.58 0.561 .9996683 1.00018

sp77\_600\_pp\_c\_lag\_all | 1.000254 .0021152 0.12 0.904 .9961169 1.004409

sp77\_601\_pp\_c\_lag\_all | .9967934 .0026402 -1.21 0.225 .9916321 1.001982

sp77\_602\_pp\_c\_lag\_all | 1.001156 .002663 0.43 0.664 .9959499 1.006389

sp77\_603\_pp\_c\_lag\_all | 1.004345 .0036603 1.19 0.234 .9971964 1.011545

sp77\_604\_pp\_c\_lag\_all | 1.000206 .0018071 0.11 0.909 .9966704 1.003754

sp77\_605\_pp\_c\_lag\_all | .9932506 .0092163 -0.73 0.465 .9753503 1.011479

sp77\_606\_1\_pp\_c\_lag\_all | .9880735 .005753 -2.06 0.039 .976862 .9994137

sp77\_606\_pp\_c\_lag\_all | 1 (omitted)

sp77\_700\_1\_pp\_c\_lag\_all | 1.005797 .0026862 2.16 0.030 1.000546 1.011075

sp77\_700\_pp\_c\_lag\_all | 1.003716 .0012002 3.10 0.002 1.001367 1.006071

sp77\_701\_1\_pp\_c\_lag\_all | 1.001558 .0016759 0.93 0.352 .9982788 1.004848

sp77\_701\_2\_pp\_c\_lag\_all | .9963348 .0014576 -2.51 0.012 .993482 .9991957

sp77\_701\_pp\_c\_lag\_all | .9999196 .000368 -0.22 0.827 .9991986 1.000641

sp75\_804\_pp\_c\_lag\_all | .9995803 .00029 -1.45 0.148 .999012 1.000149

sp75\_805\_pp\_c\_lag\_all | 1.002029 .0016938 1.20 0.230 .9987151 1.005355

sp75\_806\_pp\_c\_lag\_all | 1.019667 .004356 4.56 0.000 1.011165 1.02824

sp75\_807\_pp\_c\_lag\_all | 1.000183 .0000958 1.91 0.056 .9999956 1.000371

sp75\_808\_pp\_c\_lag\_all | .9995192 .0011009 -0.44 0.662 .9973638 1.001679

sp75\_809\_pp\_c\_lag\_all | 1.00054 .0004125 1.31 0.190 .999732 1.001349

sp75\_810\_pp\_c\_lag\_all | 1.000652 .0005501 1.19 0.236 .9995741 1.00173

sp75\_811\_pp\_c\_lag\_all | 1.000949 .0003982 2.38 0.017 1.000169 1.00173

sp77\_703\_pp\_c\_lag\_all | .9944834 .0042819 -1.28 0.199 .9861264 1.002911

sp77\_704\_1\_pp\_c\_lag\_all | 1.000114 .0012705 0.09 0.928 .9976272 1.002607

sp77\_704\_8\_pp\_c\_lag\_all | .9969725 .0025044 -1.21 0.227 .9920759 1.001893

sp77\_704\_9\_pp\_c\_lag\_all | .9884683 .0025917 -4.42 0.000 .9834016 .993561

sp77\_704\_pp\_c\_lag\_all | 1.000454 .003388 0.13 0.893 .9938356 1.007116

sp77\_705\_pp\_c\_lag\_all | 1.000098 .0007576 0.13 0.897 .9986145 1.001584

sp77\_800\_1\_pp\_c\_lag\_all | 1.007249 .0023345 3.12 0.002 1.002684 1.011835

sp77\_800\_2\_pp\_c\_lag\_all | .9974421 .0016877 -1.51 0.130 .9941398 1.000755

sp77\_800\_pp\_c\_lag\_all | .9990248 .0021867 -0.45 0.656 .9947482 1.00332

sp77\_801\_pp\_c\_lag\_all | 1 (omitted)

sp77\_802\_pp\_c\_lag\_all | 1.000163 .0026711 0.06 0.951 .9949415 1.005412

sp77\_803\_pp\_c\_lag\_all | 1.002028 .0027659 0.73 0.463 .9966221 1.007464

sp77\_804\_pp\_c\_lag\_all | .9769443 .0052828 -4.31 0.000 .966645 .9873533

sp77\_805\_pp\_c\_lag\_all | .9970489 .0054974 -0.54 0.592 .9863322 1.007882

sp77\_807\_1\_pp\_c\_lag\_all | .9942188 .0026158 -2.20 0.028 .9891052 .9993589

sp77\_807\_2\_pp\_c\_lag\_all | 1.004604 .0025943 1.78 0.075 .9995324 1.009702

sp77\_807\_3\_pp\_c\_lag\_all | 1.001342 .0020828 0.64 0.519 .9972681 1.005432

sp77\_807\_pp\_c\_lag\_all | .9989633 .002319 -0.45 0.655 .9944285 1.003519

sp77\_808\_pp\_c\_lag\_all | 1.002011 .0030144 0.67 0.504 .9961206 1.007937

sp77\_809\_pp\_c\_lag\_all | .9999664 .0010907 -0.03 0.975 .9978309 1.002106

sp77\_810\_pp\_c\_lag\_all | 1.000116 .0013186 0.09 0.930 .997535 1.002704

sp77\_900\_1\_pp\_c\_lag\_all | 1.002659 .0024817 1.07 0.283 .9978068 1.007535

sp77\_900\_2\_pp\_c\_lag\_all | 1.001459 .0015179 0.96 0.336 .9984879 1.004438

sp77\_900\_pp\_c\_lag\_all | .999435 .0014826 -0.38 0.703 .9965335 1.002345

sp77\_901\_1\_pp\_c\_lag\_all | .9780935 .0035915 -6.03 0.000 .9710794 .9851582

sp77\_901\_pp\_c\_lag\_all | 1.000668 .0019562 0.34 0.733 .9968412 1.004509

sp77\_902\_pp\_c\_lag\_all | .9959137 .0020872 -1.95 0.051 .9918312 1.000013

sp77\_903\_pp\_c\_lag\_all | 1.002967 .0020352 1.46 0.144 .998986 1.006964

sp77\_904\_pp\_c\_lag\_all | .9988586 .0004184 -2.73 0.006 .9980388 .9996791

mine\_time | .9993897 .0032744 -0.19 0.852 .9929926 1.005828

onsite\_insp\_hours | 1.000081 .0000982 0.82 0.411 .9998883 1.000273

|

state |

AL | .7290965 .195968 -1.18 0.240 .430524 1.234732

CO | .9265167 .2248036 -0.31 0.753 .5758689 1.490675

IL | .9269841 .1460028 -0.48 0.630 .6807779 1.262232

IN | .8842502 .1991761 -0.55 0.585 .5686476 1.375014

MD | 1.161222 .3008289 0.58 0.564 .6988776 1.929432

NM | 1.54036 .7742101 0.86 0.390 .5751676 4.125248

OH | .9568312 .1760842 -0.24 0.810 .6670985 1.3724

OK | .8108051 .258586 -0.66 0.511 .4339573 1.514907

PA | 1.216172 .1331569 1.79 0.074 .9812919 1.507273

TN | 1.021763 .2453698 0.09 0.929 .6381751 1.635915

UT | 1.455805 .272302 2.01 0.045 1.008996 2.100471

VA | .7615057 .0776975 -2.67 0.008 .6234819 .9300846

WV | 1.118357 .096027 1.30 0.193 .9451318 1.32333

WY | 1.558789 .4503322 1.54 0.124 .8848634 2.745987

|

time |

2000.25 | 1.082088 .1137975 0.75 0.453 .8805345 1.329778

2000.5 | 1.255087 .1310165 2.18 0.030 1.022865 1.540031

2000.75 | .9463605 .1069315 -0.49 0.626 .7583634 1.180962

2001 | 1.014456 .101533 0.14 0.886 .8337571 1.234317

2001.25 | .9246566 .1110467 -0.65 0.514 .7307274 1.170053

2001.5 | 1.13681 .1321873 1.10 0.270 .9051295 1.427791

2001.75 | .9172155 .1101501 -0.72 0.472 .7248514 1.16063

2002 | .9931942 .1219609 -0.06 0.956 .7807455 1.263452

2002.25 | .9267017 .1242832 -0.57 0.570 .7124959 1.205307

2002.5 | 1.042794 .1176976 0.37 0.710 .8358448 1.300983

2002.75 | .9256776 .1119015 -0.64 0.523 .7304009 1.173162

2003 | .7512822 .086434 -2.49 0.013 .5996164 .9413101

2003.25 | .8367478 .098807 -1.51 0.131 .6638667 1.05465

2003.5 | .9733304 .1232568 -0.21 0.831 .7593974 1.247531

2003.75 | .7538188 .0905745 -2.35 0.019 .5956505 .9539868

2004 | .8704377 .1095021 -1.10 0.270 .6802296 1.113832

2004.25 | .8521316 .1034698 -1.32 0.188 .6716606 1.081094

2004.5 | .8382836 .106312 -1.39 0.164 .6537936 1.074834

2004.75 | .7910632 .1091498 -1.70 0.089 .60362 1.036714

2005 | .666085 .0867965 -3.12 0.002 .515954 .8599009

2005.25 | .7882284 .1055223 -1.78 0.075 .6063166 1.024719

2005.5 | .8031433 .0976532 -1.80 0.071 .6328437 1.019271

2005.75 | .6105813 .0825445 -3.65 0.000 .4684567 .7958248

2006 | .6582798 .0875938 -3.14 0.002 .5071607 .854428

2006.25 | .6884972 .0912665 -2.82 0.005 .5309673 .8927637

2006.5 | .7967591 .1024926 -1.77 0.077 .6192002 1.025234

2006.75 | .6214523 .0884796 -3.34 0.001 .4701296 .8214819

2007 | .7167616 .0948445 -2.52 0.012 .5530197 .9289853

2007.25 | .5968195 .0817528 -3.77 0.000 .4562939 .7806229

2007.5 | .6737755 .0872412 -3.05 0.002 .522758 .8684198

2007.75 | .6728973 .0904973 -2.95 0.003 .5169773 .8758426

2008 | .5381438 .0766449 -4.35 0.000 .4070675 .7114269

2008.25 | .5025997 .0709599 -4.87 0.000 .3811051 .6628263

2008.5 | .5639385 .0820439 -3.94 0.000 .4240291 .7500113

2008.75 | .5758355 .0794747 -4.00 0.000 .4393582 .7547065

2009 | .5467844 .0783909 -4.21 0.000 .41284 .7241866

2009.25 | .4952565 .0679414 -5.12 0.000 .3784938 .6480397

2009.5 | .5865364 .086 -3.64 0.000 .4400367 .7818098

2009.75 | .4272009 .0652128 -5.57 0.000 .3167344 .5761946

2010 | .5073831 .0733033 -4.70 0.000 .3822611 .67346

2010.25 | .5375011 .0714599 -4.67 0.000 .4142032 .6975017

2010.5 | .5560075 .0770422 -4.24 0.000 .423775 .729501

2010.75 | .4971455 .0703298 -4.94 0.000 .3767614 .6559951

2011 | .5418777 .0774471 -4.29 0.000 .4094911 .7170643

2011.25 | .5276711 .0715632 -4.71 0.000 .4045039 .6883415

2011.5 | .5865873 .0845681 -3.70 0.000 .4421965 .7781264

2011.75 | .4918769 .0760869 -4.59 0.000 .3632341 .6660797

2012 | .5835504 .0849656 -3.70 0.000 .4386746 .7762726

2012.25 | .497306 .0680387 -5.11 0.000 .3803356 .6502501

2012.5 | .5279237 .0738362 -4.57 0.000 .4013478 .6944188

2012.75 | .5087093 .0753882 -4.56 0.000 .3804748 .6801637

2013 | .5072955 .0766289 -4.49 0.000 .3772974 .6820845

2013.25 | .4317757 .0654878 -5.54 0.000 .320742 .5812469

2013.5 | .6328412 .0938229 -3.09 0.002 .4732586 .8462349

2013.75 | .5141032 .0780488 -4.38 0.000 .3817903 .6922704

2014 | .469279 .0775579 -4.58 0.000 .3394321 .6487979

2014.25 | .5042692 .0833046 -4.14 0.000 .3647919 .6970755

2014.5 | .5106035 .0780805 -4.40 0.000 .3783727 .6890454

2014.75 | .502295 .078811 -4.39 0.000 .3693207 .6831467

2015 | .493927 .0819915 -4.25 0.000 .3567499 .6838512

2015.25 | .4949428 .0837278 -4.16 0.000 .3552713 .6895248

2015.5 | .6047949 .1032719 -2.94 0.003 .4327738 .8451919

2015.75 | .4133729 .0787158 -4.64 0.000 .2846122 .6003861

2016 | .499285 .0971299 -3.57 0.000 .3410025 .7310373

|

\_cons | .0000162 1.45e-06 -122.78 0.000 .0000136 .0000193

ln(hours) | 1 (exposure)

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**. estat gof**

Deviance goodness-of-fit = 11184.52

Prob > chi2(13448) = 1.0000

Pearson goodness-of-fit = 124934

Prob > chi2(13448) = 0.0000

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

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

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

note: sp71\_701\_pp\_c\_lag\_all omitted because of collinearity

note: sp75\_705\_3\_pp\_c\_lag\_all omitted because of collinearity

note: sp75\_834\_pp\_c\_lag\_all omitted because of collinearity

note: sp77\_606\_pp\_c\_lag\_all omitted because of collinearity

note: sp77\_801\_pp\_c\_lag\_all omitted because of collinearity

Iteration 0: log pseudolikelihood = -12026.304

Iteration 1: log pseudolikelihood = -11824.001

Iteration 2: log pseudolikelihood = -11822.879

Iteration 3: log pseudolikelihood = -11822.832

Iteration 4: log pseudolikelihood = -11822.827

Iteration 5: log pseudolikelihood = -11822.826

Iteration 6: log pseudolikelihood = -11822.826

Iteration 7: log pseudolikelihood = -11822.826

Iteration 8: log pseudolikelihood = -11822.826

Generalized linear models No. of obs = 13,797

Optimization : ML Residual df = 13,435

Scale parameter = 1

Deviance = 7372.872289 (1/df) Deviance = .548781

Pearson = 110499.7219 (1/df) Pearson = 8.224765

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

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

AIC = 1.766301

Log pseudolikelihood = -11822.82557 BIC = -120692.3

(Std. Err. adjusted for 801 clusters in mineid)

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| Robust

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

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

sp47\_41\_pp\_c\_lag\_all | 1.001678 .000591 2.84 0.004 1.00052 1.002836

sp47\_42\_pp\_c\_lag\_all | .995612 .0019653 -2.23 0.026 .9917675 .9994714

sp47\_44\_pp\_c\_lag\_all | .9987024 .0008434 -1.54 0.124 .9970507 1.000357

sp48\_11\_pp\_c\_lag\_all | 1.000155 .0006219 0.25 0.803 .9989372 1.001375

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

sp48\_25\_pp\_c\_lag\_all | .9994405 .001214 -0.46 0.645 .9970639 1.001823

sp48\_26\_pp\_c\_lag\_all | 1.00414 .0015038 2.76 0.006 1.001197 1.007092

sp48\_27\_pp\_c\_lag\_all | 1.000926 .0008772 1.06 0.291 .9992077 1.002646

sp48\_28\_pp\_c\_lag\_all | .9974192 .0011601 -2.22 0.026 .9951481 .9996955

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

sp48\_5\_pp\_c\_lag\_all | 1.000299 .0015101 0.20 0.843 .9973433 1.003263

sp48\_6\_pp\_c\_lag\_all | 1.000362 .0005627 0.64 0.519 .9992601 1.001466

sp48\_7\_pp\_c\_lag\_all | 1.001074 .0005683 1.89 0.059 .9999609 1.002189

sp48\_8\_pp\_c\_lag\_all | .9987875 .0011384 -1.06 0.287 .9965587 1.001021

sp71\_701\_pp\_c\_lag\_all | 1 (omitted)

sp72\_503\_pp\_c\_lag\_all | .9989381 .0008048 -1.32 0.187 .9973619 1.000517

sp72\_610\_pp\_c\_lag\_all | .9953937 .0045979 -1.00 0.318 .9864226 1.004446

sp72\_620\_pp\_c\_lag\_all | 1.008746 .0036165 2.43 0.015 1.001683 1.015859

sp72\_630\_pp\_c\_lag\_all | .9999599 .000091 -0.44 0.660 .9997816 1.000138

sp75\_100\_pp\_c\_lag\_all | 1.002206 .0023883 0.92 0.355 .9975359 1.006898

sp75\_1001\_1\_pp\_c\_lag\_all | 1.002768 .0036918 0.75 0.453 .9955584 1.01003

sp75\_1001\_pp\_c\_lag\_all | 1.003685 .0045782 0.81 0.420 .9947519 1.012698

sp75\_1003\_1\_pp\_c\_lag\_all | .9985965 .0020238 -0.69 0.488 .9946378 1.002571

sp75\_1100\_2\_pp\_c\_lag\_all | 1.000135 .0000845 1.60 0.110 .9999696 1.000301

sp75\_1101\_20\_pp\_c\_lag\_all | 1.00322 .0027191 1.19 0.236 .9979053 1.008564

sp75\_1102\_pp\_c\_lag\_all | 1.000369 .0008929 0.41 0.679 .9986206 1.002121

sp75\_1103\_4\_pp\_c\_lag\_all | .9999567 .0001502 -0.29 0.773 .9996623 1.000251

sp75\_1104\_pp\_c\_lag\_all | .9988159 .0005729 -2.07 0.039 .9976938 .9999393

sp75\_1106\_2\_pp\_c\_lag\_all | .9998356 .0004603 -0.36 0.721 .998934 1.000738

sp75\_1106\_3\_pp\_c\_lag\_all | 1.0002 .0001525 1.31 0.189 .9999014 1.000499

sp75\_1106\_4\_pp\_c\_lag\_all | .9997645 .0012669 -0.19 0.853 .9972844 1.002251

sp75\_1106\_5\_pp\_c\_lag\_all | .9994508 .0005382 -1.02 0.308 .9983964 1.000506

sp75\_1106\_6\_pp\_c\_lag\_all | .9999319 .0071817 -0.01 0.992 .9859547 1.014107

sp75\_1106\_pp\_c\_lag\_all | 1.002255 .0011306 2.00 0.046 1.000041 1.004473

sp75\_1107\_14\_pp\_c\_lag\_all | 1.009462 .0037143 2.56 0.010 1.002208 1.016768

sp75\_1400\_1\_pp\_c\_lag\_all | .9978601 .0023437 -0.91 0.362 .9932771 1.002464

sp75\_1400\_2\_pp\_c\_lag\_all | .9980159 .0039379 -0.50 0.615 .9903276 1.005764

sp75\_1400\_3\_pp\_c\_lag\_all | .9998521 .0005809 -0.25 0.799 .9987143 1.000991

sp75\_1400\_4\_pp\_c\_lag\_all | .9965205 .0016211 -2.14 0.032 .9933484 .9997028

sp75\_1400\_pp\_c\_lag\_all | 1.000857 .0005769 1.49 0.137 .9997272 1.001989

sp75\_1401\_1\_pp\_c\_lag\_all | 1.001794 .0078256 0.23 0.818 .9865732 1.01725

sp75\_1401\_pp\_c\_lag\_all | .9994175 .0042118 -0.14 0.890 .9911965 1.007707

sp75\_1403\_10\_pp\_c\_lag\_all | 1.000404 .0001694 2.39 0.017 1.000072 1.000736

sp75\_1403\_11\_pp\_c\_lag\_all | .9949378 .0026138 -1.93 0.053 .989828 1.000074

sp75\_1403\_3\_pp\_c\_lag\_all | .9904695 .0028429 -3.34 0.001 .9849133 .9960571

sp75\_1403\_4\_pp\_c\_lag\_all | 1.012236 .0059368 2.07 0.038 1.000667 1.023939

sp75\_1403\_5\_pp\_c\_lag\_all | .999961 .0000884 -0.44 0.660 .9997877 1.000134

sp75\_1403\_6\_pp\_c\_lag\_all | .9999687 .0000836 -0.37 0.708 .9998048 1.000133

sp75\_1403\_7\_pp\_c\_lag\_all | 1.000561 .0004683 1.20 0.231 .9996438 1.001479

sp75\_1403\_8\_pp\_c\_lag\_all | .999961 .0000804 -0.48 0.628 .9998034 1.000119

sp75\_1403\_9\_pp\_c\_lag\_all | 1.000455 .0006403 0.71 0.477 .9992014 1.001711

sp75\_1404\_1\_pp\_c\_lag\_all | .9821739 .0039272 -4.50 0.000 .9745068 .9899014

sp75\_1404\_pp\_c\_lag\_all | .998839 .0025742 -0.45 0.652 .9938063 1.003897

sp75\_1405\_1\_pp\_c\_lag\_all | .9954066 .0020984 -2.18 0.029 .9913023 .9995279

sp75\_1405\_pp\_c\_lag\_all | .9997028 .0001989 -1.49 0.135 .9993132 1.000093

sp75\_1431\_pp\_c\_lag\_all | .9908362 .0109803 -0.83 0.406 .9695473 1.012593

sp75\_1432\_pp\_c\_lag\_all | 1.000248 .002199 0.11 0.910 .9959476 1.004567

sp75\_1433\_pp\_c\_lag\_all | .9993446 .0011729 -0.56 0.576 .9970484 1.001646

sp75\_1434\_pp\_c\_lag\_all | .9989053 .0009594 -1.14 0.254 .9970266 1.000787

sp75\_1435\_pp\_c\_lag\_all | .9939397 .0042085 -1.44 0.151 .9857253 1.002223

sp75\_1437\_pp\_c\_lag\_all | 1.001997 .0041531 0.48 0.630 .9938901 1.01017

sp75\_150\_pp\_c\_lag\_all | 1.00097 .0023865 0.41 0.684 .9963031 1.005658

sp75\_151\_pp\_c\_lag\_all | 1.000601 .0032365 0.19 0.853 .9942777 1.006965

sp75\_153\_pp\_c\_lag\_all | 1.008197 .0032457 2.54 0.011 1.001856 1.014579

sp75\_156\_pp\_c\_lag\_all | .9962566 .003676 -1.02 0.309 .9890777 1.003488

sp75\_160\_pp\_c\_lag\_all | .9865667 .0067746 -1.97 0.049 .9733777 .9999343

sp75\_1600\_2\_pp\_c\_lag\_all | .9999199 .0002694 -0.30 0.766 .9993921 1.000448

sp75\_1712\_10\_pp\_c\_lag\_all | .9984837 .0007801 -1.94 0.052 .9969559 1.000014

sp75\_1712\_6\_pp\_c\_lag\_all | 1.000552 .0007571 0.73 0.465 .9990696 1.002037

sp75\_1720\_pp\_c\_lag\_all | .9993937 .0004616 -1.31 0.189 .9984893 1.000299

sp75\_1721\_pp\_c\_lag\_all | .9916408 .0028843 -2.89 0.004 .9860037 .9973101

sp75\_1725\_pp\_c\_lag\_all | 1.000039 .0000311 1.27 0.205 .9999785 1.0001

sp75\_1726\_pp\_c\_lag\_all | 1.002668 .0008738 3.06 0.002 1.000957 1.004382

sp75\_1727\_pp\_c\_lag\_all | .9997745 .0032691 -0.07 0.945 .9933877 1.006202

sp75\_1728\_pp\_c\_lag\_all | 1.00207 .0022612 0.92 0.359 .9976484 1.006512

sp75\_1729\_pp\_c\_lag\_all | .9957785 .0017075 -2.47 0.014 .9924375 .9991308

sp75\_1730\_pp\_c\_lag\_all | 1.002052 .0014504 1.42 0.157 .999213 1.004898

sp75\_1731\_pp\_c\_lag\_all | 1.000014 .0000221 0.61 0.539 .9999703 1.000057

sp75\_1903\_pp\_c\_lag\_all | 1.001345 .0005003 2.69 0.007 1.000365 1.002326

sp75\_1909\_pp\_c\_lag\_all | .9999275 .0000681 -1.06 0.287 .9997941 1.000061

sp75\_1910\_pp\_c\_lag\_all | 1.000302 .0001078 2.80 0.005 1.00009 1.000513

sp75\_1911\_pp\_c\_lag\_all | .9997819 .0001506 -1.45 0.148 .9994867 1.000077

sp75\_1912\_pp\_c\_lag\_all | 1.003017 .0012239 2.47 0.014 1.000621 1.005418

sp75\_1913\_pp\_c\_lag\_all | 1.000338 .0015664 0.22 0.829 .9972726 1.003413

sp75\_1914\_pp\_c\_lag\_all | .9998564 .0000705 -2.04 0.042 .9997182 .9999946

sp75\_1915\_pp\_c\_lag\_all | 1.000789 .0011489 0.69 0.492 .9985402 1.003044

sp75\_202\_pp\_c\_lag\_all | .9999856 .0000151 -0.95 0.340 .9999561 1.000015

sp75\_208\_pp\_c\_lag\_all | .9999225 .0001884 -0.41 0.681 .9995534 1.000292

sp75\_211\_pp\_c\_lag\_all | 1.000205 .0001847 1.11 0.268 .9998428 1.000567

sp75\_212\_pp\_c\_lag\_all | .999944 .0003986 -0.14 0.888 .9991631 1.000726

sp75\_214\_pp\_c\_lag\_all | .9997296 .0004499 -0.60 0.548 .9988482 1.000612

sp75\_312\_pp\_c\_lag\_all | .9998316 .0003452 -0.49 0.626 .9991553 1.000508

sp75\_320\_pp\_c\_lag\_all | .9997649 .0002115 -1.11 0.266 .9993506 1.000179

sp75\_324\_pp\_c\_lag\_all | .9987478 .0007227 -1.73 0.083 .9973323 1.000165

sp75\_337\_pp\_c\_lag\_all | 1.000346 .0003455 1.00 0.317 .9996686 1.001023

sp75\_340\_pp\_c\_lag\_all | .9999808 .0001181 -0.16 0.871 .9997493 1.000212

sp75\_341\_pp\_c\_lag\_all | 1.000542 .0063524 0.09 0.932 .9881688 1.01307

sp75\_342\_pp\_c\_lag\_all | .9999353 .0000634 -1.02 0.307 .999811 1.00006

sp75\_344\_pp\_c\_lag\_all | 1.000544 .0008096 0.67 0.501 .9989586 1.002132

sp75\_352\_pp\_c\_lag\_all | 1.00002 .0006281 0.03 0.974 .9987899 1.001252

sp75\_382\_pp\_c\_lag\_all | .999212 .0006047 -1.30 0.193 .9980275 1.000398

sp75\_503\_pp\_c\_lag\_all | 1.000023 .000026 0.90 0.367 .9999725 1.000074

sp75\_504\_pp\_c\_lag\_all | 1.001834 .0014539 1.26 0.207 .998989 1.004688

sp75\_505\_pp\_c\_lag\_all | 1.002923 .0017066 1.72 0.086 .9995835 1.006273

sp75\_506\_1\_pp\_c\_lag\_all | 1.002836 .0013852 2.05 0.040 1.000125 1.005554

sp75\_506\_pp\_c\_lag\_all | .997504 .0010335 -2.41 0.016 .9954804 .9995316

sp75\_507\_pp\_c\_lag\_all | .9998308 .0004 -0.42 0.672 .9990471 1.000615

sp75\_511\_1\_pp\_c\_lag\_all | 1.006378 .006089 1.05 0.293 .9945139 1.018383

sp75\_511\_pp\_c\_lag\_all | 1.000711 .0006349 1.12 0.263 .9994675 1.001956

sp75\_512\_1\_pp\_c\_lag\_all | 1.004558 .004377 1.04 0.297 .9960161 1.013174

sp75\_512\_2\_pp\_c\_lag\_all | 1.000045 .0002025 0.22 0.826 .9996477 1.000442

sp75\_512\_pp\_c\_lag\_all | 1.000023 .0000551 0.42 0.677 .9999149 1.000131

sp75\_513\_1\_pp\_c\_lag\_all | 1.002532 .0019658 1.29 0.197 .9986863 1.006392

sp75\_513\_pp\_c\_lag\_all | .9988241 .0007951 -1.48 0.139 .9972669 1.000384

sp75\_514\_pp\_c\_lag\_all | 1.000221 .0001545 1.43 0.153 .9999182 1.000524

sp75\_515\_pp\_c\_lag\_all | .9996874 .000114 -2.74 0.006 .9994639 .9999109

sp75\_516\_1\_pp\_c\_lag\_all | 1.0006 .0029841 0.20 0.841 .9947679 1.006465

sp75\_516\_2\_pp\_c\_lag\_all | .9995804 .0003642 -1.15 0.249 .9988668 1.000295

sp75\_516\_pp\_c\_lag\_all | .9998416 .0001973 -0.80 0.422 .999455 1.000228

sp75\_517\_1\_pp\_c\_lag\_all | .999248 .0020853 -0.36 0.718 .9951692 1.003343

sp75\_517\_pp\_c\_lag\_all | 1.000001 .0000286 0.02 0.986 .9999444 1.000057

sp75\_518\_1\_pp\_c\_lag\_all | .9996892 .0003375 -0.92 0.357 .9990279 1.000351

sp75\_518\_pp\_c\_lag\_all | .9999402 .0001949 -0.31 0.759 .9995582 1.000322

sp75\_519\_pp\_c\_lag\_all | .9851119 .0043712 -3.38 0.001 .9765816 .9937166

sp75\_520\_pp\_c\_lag\_all | .9998192 .0003342 -0.54 0.588 .9991643 1.000474

sp75\_523\_1\_pp\_c\_lag\_all | .9994337 .0004376 -1.29 0.196 .9985764 1.000292

sp75\_523\_2\_pp\_c\_lag\_all | .999201 .0003192 -2.50 0.012 .9985756 .9998268

sp75\_523\_pp\_c\_lag\_all | .9996486 .0003957 -0.89 0.375 .9988732 1.000424

sp75\_600\_1\_pp\_c\_lag\_all | .9957149 .0025422 -1.68 0.093 .9907447 1.00071

sp75\_600\_pp\_c\_lag\_all | .9993664 .0029874 -0.21 0.832 .9935284 1.005239

sp75\_601\_1\_pp\_c\_lag\_all | .9999341 .0001684 -0.39 0.696 .9996042 1.000264

sp75\_601\_2\_pp\_c\_lag\_all | 1.000354 .0021949 0.16 0.872 .9960611 1.004665

sp75\_601\_3\_pp\_c\_lag\_all | .9990358 .002119 -0.45 0.649 .9948913 1.003198

sp75\_601\_pp\_c\_lag\_all | 1.000046 .0002226 0.21 0.836 .9996099 1.000483

sp75\_602\_pp\_c\_lag\_all | .999802 .0005098 -0.39 0.698 .9988033 1.000802

sp75\_603\_pp\_c\_lag\_all | .999654 .0006107 -0.57 0.571 .9984578 1.000852

sp75\_604\_pp\_c\_lag\_all | .9999732 .0000513 -0.52 0.601 .9998727 1.000074

sp75\_605\_pp\_c\_lag\_all | .9997337 .0002642 -1.01 0.314 .999216 1.000252

sp75\_606\_pp\_c\_lag\_all | 1.000088 .00008 1.09 0.274 .9999308 1.000244

sp75\_607\_pp\_c\_lag\_all | .9989845 .000753 -1.35 0.178 .9975097 1.000462

sp75\_700\_1\_pp\_c\_lag\_all | .9969674 .0021006 -1.44 0.149 .9928587 1.001093

sp75\_700\_pp\_c\_lag\_all | .9999657 .0006376 -0.05 0.957 .9987167 1.001216

sp75\_701\_1\_pp\_c\_lag\_all | 1.00072 .0007168 1.00 0.315 .9993158 1.002126

sp75\_701\_2\_pp\_c\_lag\_all | .9995563 .0010535 -0.42 0.674 .9974937 1.001623

sp75\_701\_3\_pp\_c\_lag\_all | 1.000139 .000878 0.16 0.874 .9984195 1.001861

sp75\_701\_4\_pp\_c\_lag\_all | 1.004298 .0029844 1.44 0.149 .9984662 1.010165

sp75\_701\_pp\_c\_lag\_all | 1.000042 .0001626 0.26 0.795 .9997237 1.000361

sp75\_702\_1\_pp\_c\_lag\_all | .9839676 .0044568 -3.57 0.000 .9752712 .9927416

sp75\_702\_pp\_c\_lag\_all | 1.008048 .0045401 1.78 0.075 .999189 1.016986

sp75\_703\_1\_pp\_c\_lag\_all | .9842097 .005479 -2.86 0.004 .9735295 .9950071

sp75\_703\_2\_pp\_c\_lag\_all | 1.006241 .0028988 2.16 0.031 1.000575 1.011938

sp75\_703\_3\_pp\_c\_lag\_all | 1.001415 .0009348 1.52 0.130 .9995849 1.003249

sp75\_703\_4\_pp\_c\_lag\_all | 1.025027 .0070991 3.57 0.000 1.011207 1.039036

sp75\_703\_pp\_c\_lag\_all | 1.000537 .0003855 1.39 0.163 .9997819 1.001293

sp75\_704\_pp\_c\_lag\_all | .997517 .0025769 -0.96 0.336 .9924791 1.00258

sp75\_705\_1\_pp\_c\_lag\_all | 1.000711 .0013087 0.54 0.587 .9981488 1.003279

sp75\_705\_3\_pp\_c\_lag\_all | 1 (omitted)

sp75\_705\_8\_pp\_c\_lag\_all | .9908225 .0069578 -1.31 0.189 .9772788 1.004554

sp75\_705\_pp\_c\_lag\_all | .9982177 .0028623 -0.62 0.534 .9926234 1.003843

sp75\_706\_pp\_c\_lag\_all | .9993738 .0011195 -0.56 0.576 .9971819 1.00157

sp75\_800\_2\_pp\_c\_lag\_all | .9741925 .0032079 -7.94 0.000 .9679254 .9805001

sp75\_800\_3\_pp\_c\_lag\_all | .9981164 .0011286 -1.67 0.095 .9959069 1.000331

sp75\_800\_4\_pp\_c\_lag\_all | 1.001321 .0012791 1.03 0.302 .9988168 1.003831

sp75\_800\_pp\_c\_lag\_all | 1.000002 .0008095 0.00 0.998 .998417 1.00159

sp75\_801\_pp\_c\_lag\_all | 1.002442 .0028301 0.86 0.388 .99691 1.008004

sp75\_802\_pp\_c\_lag\_all | .9984621 .0023858 -0.64 0.519 .993797 1.003149

sp75\_803\_2\_pp\_c\_lag\_all | .9779522 .0015179 -14.36 0.000 .9749818 .9809318

sp75\_803\_pp\_c\_lag\_all | 1.000447 .0008456 0.53 0.597 .9987912 1.002106

sp75\_812\_pp\_c\_lag\_all | 1.002364 .0016827 1.41 0.160 .999071 1.005667

sp75\_814\_pp\_c\_lag\_all | 1.000219 .0014697 0.15 0.882 .9973426 1.003104

sp75\_815\_pp\_c\_lag\_all | 1.000094 .0011657 0.08 0.936 .9978116 1.002381

sp75\_816\_pp\_c\_lag\_all | .9993591 .0002775 -2.31 0.021 .9988153 .9999031

sp75\_818\_pp\_c\_lag\_all | .9941778 .0028261 -2.05 0.040 .9886542 .9997322

sp75\_820\_pp\_c\_lag\_all | 1.000042 .0011549 0.04 0.971 .9977814 1.002309

sp75\_821\_pp\_c\_lag\_all | 1.000213 .0009112 0.23 0.815 .9984289 1.002001

sp75\_825\_pp\_c\_lag\_all | .9996077 .0011804 -0.33 0.740 .9972968 1.001924

sp75\_827\_pp\_c\_lag\_all | .9988989 .0016422 -0.67 0.503 .9956853 1.002123

sp75\_831\_pp\_c\_lag\_all | 1.00674 .0022633 2.99 0.003 1.002313 1.011185

sp75\_832\_pp\_c\_lag\_all | 1.001044 .0082145 0.13 0.899 .9850729 1.017274

sp75\_834\_pp\_c\_lag\_all | 1 (omitted)

sp75\_900\_2\_pp\_c\_lag\_all | .9891089 .0020518 -5.28 0.000 .9850956 .9931384

sp75\_900\_3\_pp\_c\_lag\_all | 1.001361 .0007319 1.86 0.063 .9999271 1.002796

sp75\_900\_4\_pp\_c\_lag\_all | .9999056 .0003382 -0.28 0.780 .999243 1.000569

sp75\_900\_pp\_c\_lag\_all | .9998986 .0002204 -0.46 0.646 .9994668 1.000331

sp75\_901\_pp\_c\_lag\_all | .9997796 .0010549 -0.21 0.835 .9977142 1.001849

sp75\_902\_1\_pp\_c\_lag\_all | 1.002753 .0032689 0.84 0.399 .996367 1.009181

sp75\_902\_2\_pp\_c\_lag\_all | 1.000196 .0002494 0.79 0.431 .9997078 1.000685

sp75\_902\_4\_pp\_c\_lag\_all | 1.000162 .0005311 0.31 0.760 .999122 1.001204

sp75\_902\_pp\_c\_lag\_all | 1.000135 .0002766 0.49 0.625 .9995932 1.000678

sp75\_903\_pp\_c\_lag\_all | .9997682 .0003751 -0.62 0.537 .9990333 1.000504

sp75\_904\_pp\_c\_lag\_all | 1.00015 .000075 2.00 0.045 1.000003 1.000297

sp75\_905\_pp\_c\_lag\_all | .9942848 .0027289 -2.09 0.037 .9889506 .9996477

sp75\_907\_pp\_c\_lag\_all | .9996627 .0005352 -0.63 0.529 .9986143 1.000712

sp77\_103\_pp\_c\_lag\_all | .998469 .001631 -0.94 0.348 .9952773 1.001671

sp77\_104\_pp\_c\_lag\_all | .9837851 .0035694 -4.51 0.000 .976814 .9908059

sp77\_1103\_pp\_c\_lag\_all | 1.000204 .0002164 0.94 0.345 .9997803 1.000628

sp77\_1104\_pp\_c\_lag\_all | .9999649 .0000865 -0.41 0.685 .9997953 1.000134

sp77\_1106\_pp\_c\_lag\_all | .9909879 .0049907 -1.80 0.072 .9812545 1.000818

sp77\_1111\_pp\_c\_lag\_all | .9985937 .0036481 -0.39 0.700 .9914692 1.005769

sp77\_1112\_pp\_c\_lag\_all | 1.000163 .0011702 0.14 0.889 .9978719 1.002459

sp77\_1403\_pp\_c\_lag\_all | .9987124 .0012469 -1.03 0.302 .9962714 1.001159

sp77\_1432\_pp\_c\_lag\_all | .9907349 .0029321 -3.15 0.002 .9850048 .9964984

sp77\_1433\_pp\_c\_lag\_all | .9994113 .004444 -0.13 0.895 .9907391 1.008159

sp77\_1434\_pp\_c\_lag\_all | .9988105 .0019521 -0.61 0.543 .9949918 1.002644

sp77\_1437\_pp\_c\_lag\_all | .9992286 .0022745 -0.34 0.735 .9947807 1.003696

sp77\_1438\_pp\_c\_lag\_all | 1.005644 .0200422 0.28 0.778 .9671195 1.045704

sp77\_1605\_pp\_c\_lag\_all | 1.000265 .0001338 1.98 0.048 1.000002 1.000527

sp77\_1606\_pp\_c\_lag\_all | .9997984 .0001599 -1.26 0.207 .9994851 1.000112

sp77\_1710\_pp\_c\_lag\_all | 1.00038 .0003188 1.19 0.233 .9997556 1.001005

sp77\_1802\_pp\_c\_lag\_all | .9963789 .0039958 -0.90 0.366 .988578 1.004241

sp77\_1906\_pp\_c\_lag\_all | 1.004569 .0036774 1.25 0.213 .9973869 1.011802

sp77\_1915\_pp\_c\_lag\_all | .994267 .0021409 -2.67 0.008 .9900797 .9984719

sp77\_1916\_pp\_c\_lag\_all | 1.003232 .001756 1.84 0.065 .9997965 1.00668

sp77\_200\_pp\_c\_lag\_all | 1.00007 .0001097 0.64 0.521 .9998555 1.000285

sp77\_202\_pp\_c\_lag\_all | .9995922 .0001671 -2.44 0.015 .9992647 .9999198

sp77\_203\_pp\_c\_lag\_all | .9980698 .0012752 -1.51 0.130 .9955735 1.000572

sp77\_204\_pp\_c\_lag\_all | .9998414 .0002872 -0.55 0.581 .9992787 1.000404

sp77\_205\_pp\_c\_lag\_all | 1.000021 .0000984 0.21 0.830 .9998282 1.000214

sp77\_206\_pp\_c\_lag\_all | 1.000433 .0006861 0.63 0.528 .9990891 1.001779

sp77\_207\_pp\_c\_lag\_all | 1.00054 .0004871 1.11 0.268 .9995856 1.001495

sp77\_208\_pp\_c\_lag\_all | 1.000403 .0001874 2.15 0.031 1.000036 1.000771

sp77\_210\_pp\_c\_lag\_all | 1.001914 .000801 2.39 0.017 1.000346 1.003486

sp77\_216\_pp\_c\_lag\_all | 1.000175 .000375 0.47 0.640 .9994407 1.000911

sp77\_305\_pp\_c\_lag\_all | .9892529 .0046205 -2.31 0.021 .9802382 .9983504

sp77\_309\_pp\_c\_lag\_all | .9828719 .0066602 -2.55 0.011 .9699044 .9960128

sp77\_314\_pp\_c\_lag\_all | .9964777 .0089771 -0.39 0.695 .9790373 1.014229

sp77\_315\_pp\_c\_lag\_all | .9954961 .0075591 -0.59 0.552 .9807903 1.010422

sp77\_400\_pp\_c\_lag\_all | .9999921 .0001096 -0.07 0.943 .9997773 1.000207

sp77\_401\_pp\_c\_lag\_all | 1.000221 .0006868 0.32 0.747 .998876 1.001568

sp77\_402\_pp\_c\_lag\_all | .9991461 .0005576 -1.53 0.126 .9980539 1.00024

sp77\_403\_1\_pp\_c\_lag\_all | .9989806 .0009609 -1.06 0.289 .997099 1.000866

sp77\_403\_2\_pp\_c\_lag\_all | .9921861 .0081429 -0.96 0.339 .9763539 1.008275

sp77\_403\_pp\_c\_lag\_all | .9997129 .0028289 -0.10 0.919 .9941837 1.005273

sp77\_404\_pp\_c\_lag\_all | .9997629 .0001017 -2.33 0.020 .9995636 .9999623

sp77\_405\_pp\_c\_lag\_all | .9984482 .0011 -1.41 0.159 .9962946 1.000606

sp77\_408\_pp\_c\_lag\_all | 1.000281 .0015658 0.18 0.857 .9972169 1.003355

sp77\_409\_pp\_c\_lag\_all | 1.002343 .004246 0.55 0.581 .994055 1.010699

sp77\_410\_pp\_c\_lag\_all | 1.00016 .0002114 0.76 0.450 .9997454 1.000574

sp77\_411\_pp\_c\_lag\_all | .9940757 .0089532 -0.66 0.509 .9766818 1.011779

sp77\_412\_pp\_c\_lag\_all | 1.0003 .0010821 0.28 0.782 .9981809 1.002423

sp77\_413\_pp\_c\_lag\_all | .996495 .0080448 -0.43 0.664 .9808516 1.012388

sp77\_500\_pp\_c\_lag\_all | .9979826 .0015655 -1.29 0.198 .9949189 1.001056

sp77\_501\_pp\_c\_lag\_all | 1.002069 .0011154 1.86 0.063 .9998852 1.004257

sp77\_502\_1\_pp\_c\_lag\_all | 1.003522 .0052153 0.68 0.499 .9933526 1.013796

sp77\_502\_2\_pp\_c\_lag\_all | 1.000768 .000806 0.95 0.340 .9991898 1.002349

sp77\_502\_pp\_c\_lag\_all | .9999906 .0001108 -0.08 0.933 .9997734 1.000208

sp77\_503\_1\_pp\_c\_lag\_all | 1.000491 .0034124 0.14 0.885 .9938254 1.007202

sp77\_503\_pp\_c\_lag\_all | .9990373 .0017189 -0.56 0.576 .9956741 1.002412

sp77\_504\_pp\_c\_lag\_all | .9999619 .0005155 -0.07 0.941 .9989521 1.000973

sp77\_505\_pp\_c\_lag\_all | .9996961 .0002648 -1.15 0.251 .9991772 1.000215

sp77\_506\_1\_pp\_c\_lag\_all | 1.000134 .0002643 0.51 0.613 .9996158 1.000652

sp77\_506\_pp\_c\_lag\_all | .9998712 .0003098 -0.42 0.678 .9992642 1.000479

sp77\_507\_pp\_c\_lag\_all | 1.000918 .0014585 0.63 0.529 .998063 1.00378

sp77\_508\_1\_pp\_c\_lag\_all | 1.003844 .0024336 1.58 0.114 .9990856 1.008625

sp77\_508\_pp\_c\_lag\_all | .9997845 .0013311 -0.16 0.871 .997179 1.002397

sp77\_509\_pp\_c\_lag\_all | .9995265 .0005225 -0.91 0.365 .9985029 1.000551

sp77\_510\_pp\_c\_lag\_all | .9960866 .0027029 -1.44 0.148 .990803 1.001398

sp77\_511\_pp\_c\_lag\_all | .9975142 .002456 -1.01 0.312 .9927122 1.002339

sp77\_512\_pp\_c\_lag\_all | .9996997 .0002398 -1.25 0.211 .9992299 1.00017

sp77\_513\_pp\_c\_lag\_all | 1.000453 .0004458 1.02 0.309 .9995798 1.001327

sp77\_514\_pp\_c\_lag\_all | .9933113 .0032322 -2.06 0.039 .9869964 .9996665

sp77\_515\_pp\_c\_lag\_all | .6489641 .0241338 -11.63 0.000 .6033453 .698032

sp77\_516\_pp\_c\_lag\_all | 1.000052 .0001406 0.37 0.710 .9997768 1.000328

sp77\_600\_pp\_c\_lag\_all | .9999915 .0023996 -0.00 0.997 .9952993 1.004706

sp77\_601\_pp\_c\_lag\_all | .9979318 .0031196 -0.66 0.508 .9918363 1.004065

sp77\_602\_pp\_c\_lag\_all | 1.001802 .0028224 0.64 0.523 .9962857 1.00735

sp77\_603\_pp\_c\_lag\_all | 1.005233 .0038261 1.37 0.170 .9977619 1.01276

sp77\_604\_pp\_c\_lag\_all | 1.000067 .0021595 0.03 0.975 .9958432 1.004308

sp77\_605\_pp\_c\_lag\_all | .9926329 .009668 -0.76 0.448 .9738637 1.011764

sp77\_606\_1\_pp\_c\_lag\_all | .9899268 .0081346 -1.23 0.218 .9741109 1.005999

sp77\_606\_pp\_c\_lag\_all | 1 (omitted)

sp77\_700\_1\_pp\_c\_lag\_all | 1.003734 .0036378 1.03 0.304 .9966289 1.010889

sp77\_700\_pp\_c\_lag\_all | 1.00352 .001259 2.80 0.005 1.001055 1.005991

sp77\_701\_1\_pp\_c\_lag\_all | 1.003053 .0017724 1.73 0.084 .9995857 1.006533

sp77\_701\_2\_pp\_c\_lag\_all | .9962764 .0014759 -2.52 0.012 .9933879 .9991733

sp77\_701\_pp\_c\_lag\_all | .9999569 .000394 -0.11 0.913 .9991849 1.00073

sp75\_804\_pp\_c\_lag\_all | .999133 .0003493 -2.48 0.013 .9984486 .9998179

sp75\_805\_pp\_c\_lag\_all | 1.001434 .0021913 0.65 0.513 .9971481 1.005738

sp75\_806\_pp\_c\_lag\_all | 1.015226 .0046355 3.31 0.001 1.006181 1.024353

sp75\_807\_pp\_c\_lag\_all | 1.000125 .0001039 1.20 0.229 .9999214 1.000329

sp75\_808\_pp\_c\_lag\_all | 1.000187 .0011655 0.16 0.872 .9979058 1.002474

sp75\_809\_pp\_c\_lag\_all | 1.000624 .00047 1.33 0.184 .9997032 1.001546

sp75\_810\_pp\_c\_lag\_all | 1.000522 .0005359 0.98 0.329 .9994726 1.001573

sp75\_811\_pp\_c\_lag\_all | 1.000891 .0004558 1.96 0.051 .9999979 1.001785

sp77\_703\_pp\_c\_lag\_all | .9908752 .0051807 -1.75 0.080 .980773 1.001081

sp77\_704\_1\_pp\_c\_lag\_all | 1.00062 .0013387 0.46 0.643 .9979994 1.003247

sp77\_704\_8\_pp\_c\_lag\_all | .9959183 .002702 -1.51 0.132 .9906365 1.001228

sp77\_704\_9\_pp\_c\_lag\_all | .98917 .0029812 -3.61 0.000 .9833443 .9950302

sp77\_704\_pp\_c\_lag\_all | 1.000951 .0040419 0.24 0.814 .9930601 1.008904

sp77\_705\_pp\_c\_lag\_all | 1.000056 .0007959 0.07 0.943 .9984976 1.001618

sp77\_800\_1\_pp\_c\_lag\_all | 1.006691 .0025169 2.67 0.008 1.00177 1.011636

sp77\_800\_2\_pp\_c\_lag\_all | .9980524 .0018806 -1.03 0.301 .9943733 1.001745

sp77\_800\_pp\_c\_lag\_all | .9994647 .0022955 -0.23 0.816 .9949757 1.003974

sp77\_801\_pp\_c\_lag\_all | 1 (omitted)

sp77\_802\_pp\_c\_lag\_all | .9997506 .0038485 -0.06 0.948 .992236 1.007322

sp77\_803\_pp\_c\_lag\_all | 1.003203 .0028158 1.14 0.255 .9976996 1.008738

sp77\_804\_pp\_c\_lag\_all | .9771883 .0055986 -4.03 0.000 .9662767 .9882233

sp77\_805\_pp\_c\_lag\_all | .9931391 .0064056 -1.07 0.286 .9806633 1.005774

sp77\_807\_1\_pp\_c\_lag\_all | .9953176 .002756 -1.69 0.090 .9899306 1.000734

sp77\_807\_2\_pp\_c\_lag\_all | 1.003945 .0026027 1.52 0.129 .9988563 1.009059

sp77\_807\_3\_pp\_c\_lag\_all | 1.002492 .0019559 1.28 0.202 .9986659 1.006333

sp77\_807\_pp\_c\_lag\_all | .9997054 .0021605 -0.14 0.892 .9954798 1.003949

sp77\_808\_pp\_c\_lag\_all | 1.002002 .0027706 0.72 0.469 .9965869 1.007447

sp77\_809\_pp\_c\_lag\_all | .9998022 .001015 -0.19 0.845 .9978149 1.001793

sp77\_810\_pp\_c\_lag\_all | 1.000442 .0014148 0.31 0.755 .9976727 1.003219

sp77\_900\_1\_pp\_c\_lag\_all | 1.003264 .0026361 1.24 0.215 .9981112 1.008444

sp77\_900\_2\_pp\_c\_lag\_all | 1.000931 .001481 0.63 0.530 .9980321 1.003838

sp77\_900\_pp\_c\_lag\_all | .9993289 .0016179 -0.41 0.678 .996163 1.002505

sp77\_901\_1\_pp\_c\_lag\_all | .9781557 .0041046 -5.26 0.000 .9701438 .9862338

sp77\_901\_pp\_c\_lag\_all | 1.000472 .0021681 0.22 0.828 .9962319 1.004731

sp77\_902\_pp\_c\_lag\_all | .9952991 .0023352 -2.01 0.045 .9907327 .9998866

sp77\_903\_pp\_c\_lag\_all | 1.003156 .0025037 1.26 0.207 .9982608 1.008075

sp77\_904\_pp\_c\_lag\_all | .9991155 .0004696 -1.88 0.060 .9981955 1.000036

mine\_time | 1.00105 .0032351 0.32 0.745 .9947296 1.007411

onsite\_insp\_hours | 1.000101 .0001203 0.84 0.402 .9998649 1.000337

|

state |

AL | .7339338 .2133324 -1.06 0.287 .4151818 1.297405

CO | .9135135 .183363 -0.45 0.652 .6163955 1.35385

IL | .9407512 .1512612 -0.38 0.704 .686455 1.289251

IN | .8221752 .184509 -0.87 0.383 .5295919 1.276402

MD | 1.06008 .2986288 0.21 0.836 .610312 1.841304

NM | 1.806684 .9995257 1.07 0.285 .6108936 5.34317

OH | .9343106 .189539 -0.33 0.738 .6277868 1.390498

OK | .9254499 .3436288 -0.21 0.835 .4469853 1.916075

PA | 1.206477 .1476765 1.53 0.125 .9491381 1.533588

TN | 1.073903 .2758659 0.28 0.781 .6490929 1.776736

UT | 1.454632 .2851401 1.91 0.056 .9906013 2.136031

VA | .7657525 .0764312 -2.67 0.007 .6296923 .9312116

WV | 1.175211 .1033478 1.84 0.066 .9891479 1.396273

WY | 1.323309 .4101575 0.90 0.366 .7208299 2.429348

|

time |

2000.25 | 1.022645 .1182444 0.19 0.846 .8152743 1.282761

2000.5 | 1.266281 .1527877 1.96 0.050 .9995975 1.604112

2000.75 | .890529 .1173609 -0.88 0.379 .6878124 1.152992

2001 | .9485548 .1100816 -0.46 0.649 .7555772 1.19082

2001.25 | .9531981 .1314039 -0.35 0.728 .7275118 1.248896

2001.5 | 1.019229 .1222084 0.16 0.874 .8057683 1.289238

2001.75 | .8935868 .1176237 -0.85 0.393 .6903864 1.156595

2002 | .9405473 .1285306 -0.45 0.654 .7195477 1.229424

2002.25 | .8310442 .1187201 -1.30 0.195 .6280936 1.099573

2002.5 | .9529193 .1224155 -0.38 0.707 .7408115 1.225758

2002.75 | .912935 .1173927 -0.71 0.479 .7095538 1.174612

2003 | .7955723 .107245 -1.70 0.090 .6108516 1.036152

2003.25 | .7801815 .1048461 -1.85 0.065 .5995223 1.01528

2003.5 | .9455574 .1318511 -0.40 0.688 .7194392 1.242744

2003.75 | .687331 .0941805 -2.74 0.006 .5254499 .8990846

2004 | .8542398 .1205707 -1.12 0.264 .6477955 1.126475

2004.25 | .7860573 .1043343 -1.81 0.070 .6060009 1.019612

2004.5 | .8028103 .1144144 -1.54 0.123 .6071584 1.06151

2004.75 | .7293684 .1083928 -2.12 0.034 .545065 .9759904

2005 | .6507821 .0950891 -2.94 0.003 .4887224 .8665806

2005.25 | .7232521 .101717 -2.30 0.021 .5490073 .9527991

2005.5 | .7234105 .0999889 -2.34 0.019 .5517378 .948499

2005.75 | .5649723 .0849165 -3.80 0.000 .4208136 .7585155

2006 | .6747163 .0976488 -2.72 0.007 .5080781 .8960083

2006.25 | .6670994 .0948791 -2.85 0.004 .5048093 .881564

2006.5 | .7927977 .1126646 -1.63 0.102 .6000645 1.047434

2006.75 | .584881 .089643 -3.50 0.000 .4331181 .789821

2007 | .6584313 .0936293 -2.94 0.003 .4982751 .8700652

2007.25 | .5584905 .0836734 -3.89 0.000 .4163785 .7491061

2007.5 | .6436178 .0926511 -3.06 0.002 .4853941 .8534175

2007.75 | .6340802 .0895667 -3.23 0.001 .4807376 .836335

2008 | .5149894 .0780115 -4.38 0.000 .3826986 .6930105

2008.25 | .4923162 .0787254 -4.43 0.000 .3598571 .6735319

2008.5 | .553701 .0910775 -3.59 0.000 .4011089 .7643431

2008.75 | .5719416 .0879113 -3.63 0.000 .4231713 .7730135

2009 | .4927714 .0793526 -4.39 0.000 .3593964 .6756429

2009.25 | .4538573 .067373 -5.32 0.000 .3392832 .6071223

2009.5 | .5118306 .0845156 -4.06 0.000 .3703158 .7074246

2009.75 | .381947 .063505 -5.79 0.000 .2757254 .5290898

2010 | .4555014 .0712144 -5.03 0.000 .3352821 .6188266

2010.25 | .50129 .0760528 -4.55 0.000 .3723486 .6748827

2010.5 | .5613664 .0887365 -3.65 0.000 .4118081 .7652404

2010.75 | .4634695 .0734545 -4.85 0.000 .3397157 .6323051

2011 | .5256748 .0811175 -4.17 0.000 .3884787 .7113232

2011.25 | .4896063 .0757155 -4.62 0.000 .3615866 .6629514

2011.5 | .5694998 .0894928 -3.58 0.000 .4185365 .7749145

2011.75 | .4583841 .0775329 -4.61 0.000 .3290439 .6385651

2012 | .5372232 .0856014 -3.90 0.000 .3931188 .7341513

2012.25 | .4489074 .0711242 -5.06 0.000 .3290741 .6123782

2012.5 | .5404195 .0815838 -4.08 0.000 .4020039 .7264934

2012.75 | .4901365 .0814488 -4.29 0.000 .3538898 .678838

2013 | .4450028 .074595 -4.83 0.000 .3203889 .6180848

2013.25 | .3745757 .0624412 -5.89 0.000 .2701753 .5193183

2013.5 | .5586304 .0889639 -3.66 0.000 .4088534 .7632758

2013.75 | .5042927 .0857505 -4.03 0.000 .3613628 .7037557

2014 | .4303154 .0760479 -4.77 0.000 .304339 .608438

2014.25 | .4635192 .0799241 -4.46 0.000 .3305948 .6498894

2014.5 | .4894604 .084929 -4.12 0.000 .348354 .6877242

2014.75 | .4888398 .0858547 -4.08 0.000 .3464738 .689704

2015 | .5018892 .0896274 -3.86 0.000 .3536716 .7122222

2015.25 | .4851324 .0952434 -3.68 0.000 .3301783 .7128071

2015.5 | .5843994 .1062513 -2.95 0.003 .409214 .8345821

2015.75 | .4215056 .0865366 -4.21 0.000 .2818699 .6303155

2016 | .5240007 .1021088 -3.32 0.001 .3576543 .7677156

|

\_cons | .0000163 1.58e-06 -113.39 0.000 .0000135 .0000197

ln(hours) | 1 (exposure)

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

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

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

note: sp71\_701\_pp\_c\_lag\_all omitted because of collinearity

note: sp75\_1721\_pp\_c\_lag\_all omitted because of collinearity

note: sp75\_1727\_pp\_c\_lag\_all omitted because of collinearity

note: sp75\_705\_3\_pp\_c\_lag\_all omitted because of collinearity

note: sp75\_834\_pp\_c\_lag\_all omitted because of collinearity

note: sp77\_413\_pp\_c\_lag\_all omitted because of collinearity

note: sp77\_515\_pp\_c\_lag\_all omitted because of collinearity

note: sp77\_606\_pp\_c\_lag\_all omitted because of collinearity

note: sp77\_801\_pp\_c\_lag\_all omitted because of collinearity

note: sp77\_804\_pp\_c\_lag\_all omitted because of collinearity

Fitting Poisson model:

Iteration 0: log pseudolikelihood = -15464.827

Iteration 1: log pseudolikelihood = -14797.406

Iteration 2: log pseudolikelihood = -6559.5646

Iteration 3: log pseudolikelihood = -5772.4628

Iteration 4: log pseudolikelihood = -5719.3772

Iteration 5: log pseudolikelihood = -5717.8844

Iteration 6: log pseudolikelihood = -5717.8827

Iteration 7: log pseudolikelihood = -5717.8826

Fitting constant-only model:

Iteration 0: log pseudolikelihood = -6381.5793

Iteration 1: log pseudolikelihood = -6206.4008

Iteration 2: log pseudolikelihood = -6201.5718

Iteration 3: log pseudolikelihood = -6201.5604

Iteration 4: log pseudolikelihood = -6201.5604

Fitting full model:

Iteration 0: log pseudolikelihood = -5804.5941

Iteration 1: log pseudolikelihood = -5739.8734

Iteration 2: log pseudolikelihood = -5723.8605

Iteration 3: log pseudolikelihood = -5719.4738

Iteration 4: log pseudolikelihood = -5718.2536

Iteration 5: log pseudolikelihood = -5717.9531

Iteration 6: log pseudolikelihood = -5717.8992

Iteration 7: log pseudolikelihood = -5717.8863

Iteration 8: log pseudolikelihood = -5717.8834

Iteration 9: log pseudolikelihood = -5717.8827

Iteration 10: log pseudolikelihood = -5717.8826 (not concave)

Iteration 11: log pseudolikelihood = -5717.8822 (not concave)

Iteration 12: log pseudolikelihood = -5717.8819

Iteration 13: log pseudolikelihood = -5717.8818 (not concave)

Iteration 14: log pseudolikelihood = -5717.8818 (not concave)

Iteration 15: log pseudolikelihood = -5717.8818 (not concave)

Iteration 16: log pseudolikelihood = -5717.8818 (not concave)

Iteration 17: log pseudolikelihood = -5717.8818 (not concave)

Iteration 18: log pseudolikelihood = -5717.8818 (not concave)

Iteration 19: log pseudolikelihood = -5717.8818 (not concave)

Iteration 20: log pseudolikelihood = -5717.8818 (not concave)

Iteration 21: log pseudolikelihood = -5717.8818 (not concave)

Iteration 22: log pseudolikelihood = -5717.8818 (not concave)

Iteration 23: log pseudolikelihood = -5717.8818 (not concave)

Iteration 24: log pseudolikelihood = -5717.8818 (not concave)

Iteration 25: log pseudolikelihood = -5717.8818 (not concave)

Iteration 26: log pseudolikelihood = -5717.8818 (not concave)

Iteration 27: log pseudolikelihood = -5717.8818 (not concave)

Iteration 28: log pseudolikelihood = -5717.8818 (not concave)

Iteration 29: log pseudolikelihood = -5717.8818 (not concave)

Iteration 30: log pseudolikelihood = -5717.8818 (not concave)

Iteration 31: log pseudolikelihood = -5717.8818 (not concave)

Iteration 32: log pseudolikelihood = -5717.8818 (not concave)

Iteration 33: log pseudolikelihood = -5717.8818 (not concave)

Iteration 34: log pseudolikelihood = -5717.8818 (not concave)

Iteration 35: log pseudolikelihood = -5717.8818 (not concave)

Iteration 36: log pseudolikelihood = -5717.8818 (not concave)

Iteration 37: log pseudolikelihood = -5717.8818 (not concave)

Iteration 38: log pseudolikelihood = -5717.8818 (not concave)

Iteration 39: log pseudolikelihood = -5717.8818 (not concave)

Iteration 40: log pseudolikelihood = -5717.8818 (not concave)

Iteration 41: log pseudolikelihood = -5717.8818 (not concave)

Iteration 42: log pseudolikelihood = -5717.8818 (not concave)

Iteration 43: log pseudolikelihood = -5717.8818 (not concave)

Iteration 44: log pseudolikelihood = -5717.8818 (not concave)

Iteration 45: log pseudolikelihood = -5717.8818 (not concave)

Iteration 46: log pseudolikelihood = -5717.8818 (not concave)

Iteration 47: log pseudolikelihood = -5717.8818 (not concave)

Iteration 48: log pseudolikelihood = -5717.8818 (not concave)

Iteration 49: log pseudolikelihood = -5717.8818 (not concave)

Iteration 50: log pseudolikelihood = -5717.8818 (not concave)

convergence not achieved

Negative binomial regression Number of obs = 7,057

Wald chi2(323) = .

Dispersion = mean Prob > chi2 = .

Log pseudolikelihood = -5717.8818 Pseudo R2 = 0.0780

(Std. Err. adjusted for 402 clusters in mineid)

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| Robust

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

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

sp47\_41\_pp\_c\_lag\_all | 1.000762 .0005592 1.36 0.173 .9996667 1.001859

sp47\_42\_pp\_c\_lag\_all | .9978222 .0019068 -1.14 0.254 .994092 1.001566

sp47\_44\_pp\_c\_lag\_all | .9990194 .0008074 -1.21 0.225 .9974382 1.000603

sp48\_11\_pp\_c\_lag\_all | 1.000343 .0006823 0.50 0.615 .9990069 1.001681

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

sp48\_25\_pp\_c\_lag\_all | 1.000167 .0009944 0.17 0.867 .9982194 1.002117

sp48\_26\_pp\_c\_lag\_all | 1.00263 .0013219 1.99 0.046 1.000043 1.005224

sp48\_27\_pp\_c\_lag\_all | 1.000862 .0010113 0.85 0.394 .9988823 1.002846

sp48\_28\_pp\_c\_lag\_all | .9980776 .0011403 -1.68 0.092 .9958452 1.000315

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

sp48\_5\_pp\_c\_lag\_all | .9998613 .001482 -0.09 0.925 .9969608 1.00277

sp48\_6\_pp\_c\_lag\_all | 1.000321 .0005975 0.54 0.591 .9991504 1.001492

sp48\_7\_pp\_c\_lag\_all | 1.00112 .0005638 1.99 0.047 1.000016 1.002226

sp48\_8\_pp\_c\_lag\_all | 1.000013 .0012155 0.01 0.991 .9976335 1.002398

sp71\_701\_pp\_c\_lag\_all | 1 (omitted)

sp72\_503\_pp\_c\_lag\_all | .9995842 .0006924 -0.60 0.548 .998228 1.000942

sp72\_610\_pp\_c\_lag\_all | .999189 .00545 -0.15 0.882 .9885641 1.009928

sp72\_620\_pp\_c\_lag\_all | 1.000831 .0039558 0.21 0.834 .9931078 1.008615

sp72\_630\_pp\_c\_lag\_all | .9999289 .0000851 -0.84 0.403 .9997621 1.000096

sp75\_100\_pp\_c\_lag\_all | 1.00036 .0023412 0.15 0.878 .9957817 1.004959

sp75\_1001\_1\_pp\_c\_lag\_all | .9939941 .0048313 -1.24 0.215 .98457 1.003508

sp75\_1001\_pp\_c\_lag\_all | 1.030268 .0128075 2.40 0.016 1.005469 1.055678

sp75\_1003\_1\_pp\_c\_lag\_all | .9935219 .0019603 -3.29 0.001 .9896871 .9973715

sp75\_1100\_2\_pp\_c\_lag\_all | 1.000134 .0000859 1.56 0.119 .9999657 1.000302

sp75\_1101\_20\_pp\_c\_lag\_all | 1.001165 .0023291 0.50 0.617 .9966109 1.005741

sp75\_1102\_pp\_c\_lag\_all | .9997565 .0009515 -0.26 0.798 .9978933 1.001623

sp75\_1103\_4\_pp\_c\_lag\_all | .9998878 .0001403 -0.80 0.424 .999613 1.000163

sp75\_1104\_pp\_c\_lag\_all | .998981 .0005654 -1.80 0.072 .9978735 1.00009

sp75\_1106\_2\_pp\_c\_lag\_all | .9997809 .0003848 -0.57 0.569 .999027 1.000535

sp75\_1106\_3\_pp\_c\_lag\_all | 1.000004 .0001535 0.03 0.977 .9997036 1.000305

sp75\_1106\_4\_pp\_c\_lag\_all | 1.001602 .0014851 1.08 0.280 .9986954 1.004517

sp75\_1106\_5\_pp\_c\_lag\_all | .9991989 .000494 -1.62 0.105 .9982311 1.000168

sp75\_1106\_6\_pp\_c\_lag\_all | 1.021036 .0094579 2.25 0.025 1.002666 1.039742

sp75\_1106\_pp\_c\_lag\_all | 1.001452 .001017 1.43 0.153 .9994604 1.003447

sp75\_1107\_14\_pp\_c\_lag\_all | 1.010408 .003728 2.81 0.005 1.003127 1.017741

sp75\_1400\_1\_pp\_c\_lag\_all | .9979467 .0027587 -0.74 0.457 .9925543 1.003368

sp75\_1400\_2\_pp\_c\_lag\_all | .9983317 .0040873 -0.41 0.683 .9903528 1.006375

sp75\_1400\_3\_pp\_c\_lag\_all | 1.000117 .0005712 0.21 0.837 .9989983 1.001237

sp75\_1400\_4\_pp\_c\_lag\_all | .9967058 .0015638 -2.10 0.035 .9936454 .9997755

sp75\_1400\_pp\_c\_lag\_all | 1.00017 .0008135 0.21 0.834 .9985771 1.001766

sp75\_1401\_1\_pp\_c\_lag\_all | 1.008163 .0062729 1.31 0.191 .9959429 1.020533

sp75\_1401\_pp\_c\_lag\_all | 1.005079 .0052167 0.98 0.329 .9949067 1.015356

sp75\_1403\_10\_pp\_c\_lag\_all | 1.000215 .0001616 1.33 0.183 .9998983 1.000532

sp75\_1403\_11\_pp\_c\_lag\_all | .9989214 .0022379 -0.48 0.630 .9945447 1.003317

sp75\_1403\_3\_pp\_c\_lag\_all | .9948265 .0022483 -2.30 0.022 .9904296 .999243

sp75\_1403\_4\_pp\_c\_lag\_all | 1.001537 .0040834 0.38 0.706 .9935661 1.009573

sp75\_1403\_5\_pp\_c\_lag\_all | 1.000061 .0001 0.61 0.542 .999865 1.000257

sp75\_1403\_6\_pp\_c\_lag\_all | .9999478 .0000805 -0.65 0.517 .9997901 1.000106

sp75\_1403\_7\_pp\_c\_lag\_all | 1.000532 .0005155 1.03 0.302 .9995221 1.001543

sp75\_1403\_8\_pp\_c\_lag\_all | .999969 .0000747 -0.42 0.678 .9998227 1.000115

sp75\_1403\_9\_pp\_c\_lag\_all | .9992872 .000605 -1.18 0.239 .9981021 1.000474

sp75\_1404\_1\_pp\_c\_lag\_all | .9808646 .0058669 -3.23 0.001 .9694327 .9924313

sp75\_1404\_pp\_c\_lag\_all | 1.000113 .0028228 0.04 0.968 .994596 1.005661

sp75\_1405\_1\_pp\_c\_lag\_all | .995474 .001346 -3.36 0.001 .9928395 .9981156

sp75\_1405\_pp\_c\_lag\_all | .999554 .0001896 -2.35 0.019 .9991824 .9999257

sp75\_1431\_pp\_c\_lag\_all | 1.004936 .0210606 0.23 0.814 .9644946 1.047074

sp75\_1432\_pp\_c\_lag\_all | 1.000891 .0015696 0.57 0.570 .9978195 1.003972

sp75\_1433\_pp\_c\_lag\_all | .999648 .0008905 -0.40 0.693 .9979042 1.001395

sp75\_1434\_pp\_c\_lag\_all | 1.000286 .0011016 0.26 0.795 .9981288 1.002447

sp75\_1435\_pp\_c\_lag\_all | .9996786 .0034357 -0.09 0.925 .9929673 1.006435

sp75\_1437\_pp\_c\_lag\_all | .9989731 .002332 -0.44 0.660 .9944129 1.003554

sp75\_150\_pp\_c\_lag\_all | 1.001136 .0020879 0.54 0.586 .9970521 1.005237

sp75\_151\_pp\_c\_lag\_all | .998268 .003136 -0.55 0.581 .9921404 1.004433

sp75\_153\_pp\_c\_lag\_all | 1.006313 .0031397 2.02 0.044 1.000178 1.012485

sp75\_156\_pp\_c\_lag\_all | 1.001213 .0034282 0.35 0.723 .994516 1.007954

sp75\_160\_pp\_c\_lag\_all | .9928957 .005995 -1.18 0.238 .981215 1.004715

sp75\_1600\_2\_pp\_c\_lag\_all | 1.00001 .00025 0.04 0.969 .9995197 1.0005

sp75\_1712\_10\_pp\_c\_lag\_all | .9991736 .0007552 -1.09 0.274 .9976946 1.000655

sp75\_1712\_6\_pp\_c\_lag\_all | 1.000217 .0006165 0.35 0.724 .9990098 1.001426

sp75\_1720\_pp\_c\_lag\_all | .9991891 .0004601 -1.76 0.078 .9982878 1.000091

sp75\_1721\_pp\_c\_lag\_all | 1 (omitted)

sp75\_1725\_pp\_c\_lag\_all | 1.000054 .0000348 1.55 0.122 .9999857 1.000122

sp75\_1726\_pp\_c\_lag\_all | 1.002544 .0009159 2.78 0.005 1.000751 1.004341

sp75\_1727\_pp\_c\_lag\_all | 1 (omitted)

sp75\_1728\_pp\_c\_lag\_all | 1.002227 .0019845 1.12 0.261 .9983452 1.006124

sp75\_1729\_pp\_c\_lag\_all | .9963987 .001836 -1.96 0.050 .9928066 1.000004

sp75\_1730\_pp\_c\_lag\_all | 1.001346 .0015652 0.86 0.389 .998283 1.004419

sp75\_1731\_pp\_c\_lag\_all | 1.000041 .0000216 1.89 0.059 .9999985 1.000083

sp75\_1903\_pp\_c\_lag\_all | 1.000946 .0005753 1.64 0.100 .9998189 1.002074

sp75\_1909\_pp\_c\_lag\_all | .9998774 .0000761 -1.61 0.107 .9997282 1.000027

sp75\_1910\_pp\_c\_lag\_all | 1.000325 .0001078 3.01 0.003 1.000114 1.000536

sp75\_1911\_pp\_c\_lag\_all | .9998133 .0001417 -1.32 0.187 .9995357 1.000091

sp75\_1912\_pp\_c\_lag\_all | 1.001366 .0013336 1.02 0.305 .9987555 1.003983

sp75\_1913\_pp\_c\_lag\_all | 1.000712 .0016036 0.44 0.657 .9975736 1.003859

sp75\_1914\_pp\_c\_lag\_all | .9999433 .0000696 -0.81 0.415 .9998069 1.00008

sp75\_1915\_pp\_c\_lag\_all | 1.000286 .0011182 0.26 0.798 .9980965 1.00248

sp75\_202\_pp\_c\_lag\_all | .9999808 .0000149 -1.29 0.199 .9999515 1.00001

sp75\_208\_pp\_c\_lag\_all | .9998752 .0001807 -0.69 0.490 .9995211 1.00023

sp75\_211\_pp\_c\_lag\_all | 1.000145 .0001964 0.74 0.459 .9997606 1.00053

sp75\_212\_pp\_c\_lag\_all | 1.000411 .0004384 0.94 0.348 .9995524 1.001271

sp75\_214\_pp\_c\_lag\_all | 1.000131 .0004171 0.31 0.754 .9993137 1.000949

sp75\_312\_pp\_c\_lag\_all | .9996548 .000336 -1.03 0.304 .9989964 1.000314

sp75\_320\_pp\_c\_lag\_all | .9997049 .0001864 -1.58 0.114 .9993396 1.00007

sp75\_324\_pp\_c\_lag\_all | .9981536 .0007783 -2.37 0.018 .9966293 .9996802

sp75\_337\_pp\_c\_lag\_all | 1.000298 .0003545 0.84 0.400 .9996037 1.000993

sp75\_340\_pp\_c\_lag\_all | 1.000069 .0001049 0.66 0.512 .9998632 1.000275

sp75\_341\_pp\_c\_lag\_all | 1.001653 .0051316 0.32 0.747 .9916454 1.011761

sp75\_342\_pp\_c\_lag\_all | .9999539 .000061 -0.76 0.450 .9998343 1.000074

sp75\_344\_pp\_c\_lag\_all | .9989995 .0009579 -1.04 0.296 .9971238 1.000879

sp75\_352\_pp\_c\_lag\_all | .9992974 .0007262 -0.97 0.333 .9978751 1.000722

sp75\_382\_pp\_c\_lag\_all | .9996418 .0005198 -0.69 0.491 .9986235 1.000661

sp75\_503\_pp\_c\_lag\_all | .9999841 .0000213 -0.74 0.457 .9999424 1.000026

sp75\_504\_pp\_c\_lag\_all | 1.003012 .0014799 2.04 0.041 1.000116 1.005917

sp75\_505\_pp\_c\_lag\_all | 1.001969 .0018586 1.06 0.289 .9983328 1.005619

sp75\_506\_1\_pp\_c\_lag\_all | 1.002327 .0013041 1.79 0.074 .9997747 1.004887

sp75\_506\_pp\_c\_lag\_all | .9986528 .0010196 -1.32 0.187 .9966565 1.000653

sp75\_507\_pp\_c\_lag\_all | .9994586 .0004866 -1.11 0.266 .9985053 1.000413

sp75\_511\_1\_pp\_c\_lag\_all | .9939667 .0093781 -0.64 0.521 .9757549 1.012518

sp75\_511\_pp\_c\_lag\_all | 1.000367 .0006629 0.55 0.580 .9990684 1.001667

sp75\_512\_1\_pp\_c\_lag\_all | 1.007599 .0044847 1.70 0.089 .9988469 1.016427

sp75\_512\_2\_pp\_c\_lag\_all | 1.000251 .0001806 1.39 0.164 .9998971 1.000605

sp75\_512\_pp\_c\_lag\_all | 1.000025 .0000555 0.44 0.658 .9999158 1.000133

sp75\_513\_1\_pp\_c\_lag\_all | 1.001455 .0021064 0.69 0.489 .9973355 1.005592

sp75\_513\_pp\_c\_lag\_all | .9986353 .0008195 -1.66 0.096 .9970303 1.000243

sp75\_514\_pp\_c\_lag\_all | 1.000016 .0001669 0.10 0.922 .9996892 1.000344

sp75\_515\_pp\_c\_lag\_all | .9999094 .0001161 -0.78 0.435 .9996818 1.000137

sp75\_516\_1\_pp\_c\_lag\_all | .9973309 .0026933 -0.99 0.322 .992066 1.002624

sp75\_516\_2\_pp\_c\_lag\_all | .9995626 .0003336 -1.31 0.190 .998909 1.000217

sp75\_516\_pp\_c\_lag\_all | .9998374 .0001967 -0.83 0.409 .9994519 1.000223

sp75\_517\_1\_pp\_c\_lag\_all | .9973254 .0026064 -1.02 0.305 .99223 1.002447

sp75\_517\_pp\_c\_lag\_all | 1.00002 .0000289 0.69 0.489 .9999634 1.000077

sp75\_518\_1\_pp\_c\_lag\_all | .9997688 .0003355 -0.69 0.491 .9991114 1.000427

sp75\_518\_pp\_c\_lag\_all | .9998295 .000191 -0.89 0.372 .9994553 1.000204

sp75\_519\_pp\_c\_lag\_all | .9913388 .0042871 -2.01 0.044 .9829717 .999777

sp75\_520\_pp\_c\_lag\_all | 1.000449 .0004024 1.12 0.264 .999661 1.001238

sp75\_523\_1\_pp\_c\_lag\_all | .9995368 .0004861 -0.95 0.341 .9985845 1.00049

sp75\_523\_2\_pp\_c\_lag\_all | .9995831 .0003515 -1.19 0.236 .9988945 1.000272

sp75\_523\_pp\_c\_lag\_all | .9999224 .0004757 -0.16 0.870 .9989905 1.000855

sp75\_600\_1\_pp\_c\_lag\_all | .9990108 .0022924 -0.43 0.666 .9945279 1.003514

sp75\_600\_pp\_c\_lag\_all | .9973023 .0039195 -0.69 0.492 .9896496 1.005014

sp75\_601\_1\_pp\_c\_lag\_all | .9997521 .0001564 -1.58 0.113 .9994456 1.000059

sp75\_601\_2\_pp\_c\_lag\_all | 1.001212 .002319 0.52 0.601 .9966769 1.005767

sp75\_601\_3\_pp\_c\_lag\_all | .9978667 .0040431 -0.53 0.598 .9899738 1.005822

sp75\_601\_pp\_c\_lag\_all | 1.000255 .000212 1.20 0.230 .9998391 1.00067

sp75\_602\_pp\_c\_lag\_all | .9994644 .0005718 -0.94 0.349 .9983443 1.000586

sp75\_603\_pp\_c\_lag\_all | .9994784 .0005116 -1.02 0.308 .9984763 1.000482

sp75\_604\_pp\_c\_lag\_all | .9999323 .0000508 -1.33 0.183 .9998327 1.000032

sp75\_605\_pp\_c\_lag\_all | .9999464 .0002442 -0.22 0.826 .9994679 1.000425

sp75\_606\_pp\_c\_lag\_all | 1.000097 .0000886 1.10 0.273 .9999233 1.000271

sp75\_607\_pp\_c\_lag\_all | .9990967 .000745 -1.21 0.226 .9976375 1.000558

sp75\_700\_1\_pp\_c\_lag\_all | .9917944 .003056 -2.67 0.007 .9858228 .9978021

sp75\_700\_pp\_c\_lag\_all | 1.000526 .0007819 0.67 0.501 .9989943 1.002059

sp75\_701\_1\_pp\_c\_lag\_all | 1.000852 .0007823 1.09 0.276 .99932 1.002386

sp75\_701\_2\_pp\_c\_lag\_all | 1.000719 .0010746 0.67 0.503 .998615 1.002827

sp75\_701\_3\_pp\_c\_lag\_all | .9990079 .0008217 -1.21 0.227 .9973987 1.00062

sp75\_701\_4\_pp\_c\_lag\_all | 1.005725 .0032476 1.77 0.077 .9993796 1.01211

sp75\_701\_pp\_c\_lag\_all | 1.000096 .0001515 0.64 0.525 .9997994 1.000393

sp75\_702\_1\_pp\_c\_lag\_all | .9857554 .0040157 -3.52 0.000 .977916 .9936576

sp75\_702\_pp\_c\_lag\_all | 1.008753 .0047176 1.86 0.062 .9995485 1.018041

sp75\_703\_1\_pp\_c\_lag\_all | .9919283 .005114 -1.57 0.116 .9819554 1.002002

sp75\_703\_2\_pp\_c\_lag\_all | .9997434 .0060651 -0.04 0.966 .9879264 1.011702

sp75\_703\_3\_pp\_c\_lag\_all | 1.001148 .0008382 1.37 0.171 .9995065 1.002792

sp75\_703\_4\_pp\_c\_lag\_all | 1.029212 .0064128 4.62 0.000 1.01672 1.041858

sp75\_703\_pp\_c\_lag\_all | 1.000593 .000367 1.62 0.106 .9998737 1.001312

sp75\_704\_pp\_c\_lag\_all | .9962484 .0021874 -1.71 0.087 .9919704 1.000545

sp75\_705\_1\_pp\_c\_lag\_all | 1.00002 .0012068 0.02 0.987 .9976578 1.002388

sp75\_705\_3\_pp\_c\_lag\_all | 1 (omitted)

sp75\_705\_8\_pp\_c\_lag\_all | .9910508 .0075624 -1.18 0.239 .9763391 1.005984

sp75\_705\_pp\_c\_lag\_all | .9975241 .0036393 -0.68 0.497 .9904166 1.004683

sp75\_706\_pp\_c\_lag\_all | .9985927 .0010299 -1.37 0.172 .9965761 1.000613

sp75\_800\_2\_pp\_c\_lag\_all | .352145 .0132569 -27.72 0.000 .3270974 .3791108

sp75\_800\_3\_pp\_c\_lag\_all | .99939 .0010182 -0.60 0.549 .9973964 1.001388

sp75\_800\_4\_pp\_c\_lag\_all | 1.001156 .0014029 0.82 0.410 .9984099 1.003909

sp75\_800\_pp\_c\_lag\_all | 1.000637 .000753 0.85 0.397 .9991622 1.002114

sp75\_801\_pp\_c\_lag\_all | 1.001683 .0024377 0.69 0.490 .996916 1.006472

sp75\_802\_pp\_c\_lag\_all | .9988668 .0021709 -0.52 0.602 .9946209 1.003131

sp75\_803\_2\_pp\_c\_lag\_all | .9800695 .0017765 -11.11 0.000 .9765938 .9835575

sp75\_803\_pp\_c\_lag\_all | 1.001116 .000952 1.17 0.241 .9992515 1.002983

sp75\_812\_pp\_c\_lag\_all | .9990217 .0017362 -0.56 0.573 .9956247 1.00243

sp75\_814\_pp\_c\_lag\_all | 1.000728 .0017176 0.42 0.672 .9973671 1.0041

sp75\_815\_pp\_c\_lag\_all | .9983756 .001448 -1.12 0.262 .9955415 1.001218

sp75\_816\_pp\_c\_lag\_all | .9992377 .0002974 -2.56 0.010 .998655 .9998208

sp75\_818\_pp\_c\_lag\_all | 1.002386 .0032046 0.75 0.456 .9961244 1.008686

sp75\_820\_pp\_c\_lag\_all | .9984272 .0009016 -1.74 0.081 .9966617 1.000196

sp75\_821\_pp\_c\_lag\_all | 1.001385 .0008368 1.66 0.098 .9997461 1.003026

sp75\_825\_pp\_c\_lag\_all | 1.001176 .0010316 1.14 0.254 .9991562 1.0032

sp75\_827\_pp\_c\_lag\_all | 1.000147 .0014836 0.10 0.921 .9972431 1.003059

sp75\_831\_pp\_c\_lag\_all | 1.005803 .0033174 1.75 0.079 .9993223 1.012326

sp75\_832\_pp\_c\_lag\_all | 1.009331 .0063352 1.48 0.139 .9969903 1.021824

sp75\_834\_pp\_c\_lag\_all | 1 (omitted)

sp75\_900\_2\_pp\_c\_lag\_all | .9900993 .0051428 -1.92 0.055 .9800708 1.00023

sp75\_900\_3\_pp\_c\_lag\_all | 1.000467 .0008938 0.52 0.601 .998717 1.00222

sp75\_900\_4\_pp\_c\_lag\_all | .9998332 .0003659 -0.46 0.648 .9991163 1.000551

sp75\_900\_pp\_c\_lag\_all | .9998504 .0002496 -0.60 0.549 .9993613 1.00034

sp75\_901\_pp\_c\_lag\_all | .9990898 .0012559 -0.72 0.469 .9966313 1.001554

sp75\_902\_1\_pp\_c\_lag\_all | 1.000937 .0038 0.25 0.805 .9935173 1.008413

sp75\_902\_2\_pp\_c\_lag\_all | 1.000036 .0003287 0.11 0.914 .9993916 1.00068

sp75\_902\_4\_pp\_c\_lag\_all | 1.000799 .0007011 1.14 0.254 .9994257 1.002174

sp75\_902\_pp\_c\_lag\_all | 1.000499 .0002837 1.76 0.078 .9999436 1.001055

sp75\_903\_pp\_c\_lag\_all | 1.000349 .0003927 0.89 0.374 .9995796 1.001119

sp75\_904\_pp\_c\_lag\_all | 1.000044 .0000977 0.45 0.655 .9998521 1.000235

sp75\_905\_pp\_c\_lag\_all | .9972384 .0034465 -0.80 0.424 .9905062 1.004016

sp75\_907\_pp\_c\_lag\_all | 1.000166 .0007737 0.21 0.830 .9986504 1.001683

sp77\_103\_pp\_c\_lag\_all | .9976917 .0016735 -1.38 0.168 .9944171 1.000977

sp77\_104\_pp\_c\_lag\_all | .98826 .0033785 -3.45 0.001 .9816603 .994904

sp77\_1103\_pp\_c\_lag\_all | 1.000595 .0002585 2.30 0.021 1.000089 1.001102

sp77\_1104\_pp\_c\_lag\_all | .9999214 .0000972 -0.81 0.419 .9997309 1.000112

sp77\_1106\_pp\_c\_lag\_all | .9939391 .0048304 -1.25 0.211 .9845167 1.003452

sp77\_1111\_pp\_c\_lag\_all | 1.000169 .0034057 0.05 0.960 .993516 1.006866

sp77\_1112\_pp\_c\_lag\_all | 1.001456 .000846 1.72 0.085 .999799 1.003115

sp77\_1403\_pp\_c\_lag\_all | .9992034 .0014036 -0.57 0.571 .9964562 1.001958

sp77\_1432\_pp\_c\_lag\_all | 1.003081 .0027413 1.13 0.260 .9977221 1.008468

sp77\_1433\_pp\_c\_lag\_all | 1.003064 .0035985 0.85 0.394 .9960354 1.010141

sp77\_1434\_pp\_c\_lag\_all | .9949839 .0018177 -2.75 0.006 .9914276 .9985529

sp77\_1437\_pp\_c\_lag\_all | .9975844 .001339 -1.80 0.072 .9949635 1.000212

sp77\_1438\_pp\_c\_lag\_all | .9517135 .0181352 -2.60 0.009 .9168247 .98793

sp77\_1605\_pp\_c\_lag\_all | .9999676 .000131 -0.25 0.805 .9997109 1.000224

sp77\_1606\_pp\_c\_lag\_all | 1.000015 .0001832 0.08 0.937 .9996555 1.000374

sp77\_1710\_pp\_c\_lag\_all | 1.000039 .0003807 0.10 0.917 .9992936 1.000786

sp77\_1802\_pp\_c\_lag\_all | 1.009551 .0148055 0.65 0.517 .9809461 1.038991

sp77\_1906\_pp\_c\_lag\_all | 1.00171 .0034255 0.50 0.617 .9950185 1.008446

sp77\_1915\_pp\_c\_lag\_all | .9930636 .0020074 -3.44 0.001 .9891368 .9970059

sp77\_1916\_pp\_c\_lag\_all | 1.00337 .0021332 1.58 0.114 .9991976 1.007559

sp77\_200\_pp\_c\_lag\_all | 1.000113 .0003174 0.36 0.722 .9994908 1.000735

sp77\_202\_pp\_c\_lag\_all | .9995825 .0002189 -1.91 0.056 .9991536 1.000012

sp77\_203\_pp\_c\_lag\_all | 1.000776 .001642 0.47 0.636 .9975634 1.004

sp77\_204\_pp\_c\_lag\_all | .9998857 .0004288 -0.27 0.790 .9990456 1.000726

sp77\_205\_pp\_c\_lag\_all | .999952 .0001392 -0.34 0.730 .9996793 1.000225

sp77\_206\_pp\_c\_lag\_all | 1.00217 .000727 2.99 0.003 1.000746 1.003595

sp77\_207\_pp\_c\_lag\_all | .9999123 .0005502 -0.16 0.873 .9988345 1.000991

sp77\_208\_pp\_c\_lag\_all | 1.000542 .0001856 2.92 0.003 1.000179 1.000906

sp77\_210\_pp\_c\_lag\_all | 1.002239 .0008122 2.76 0.006 1.000648 1.003832

sp77\_216\_pp\_c\_lag\_all | .9998148 .000419 -0.44 0.659 .998994 1.000636

sp77\_305\_pp\_c\_lag\_all | .9947474 .0046885 -1.12 0.264 .9856004 1.003979

sp77\_309\_pp\_c\_lag\_all | .9870449 .0089376 -1.44 0.150 .969682 1.004719

sp77\_314\_pp\_c\_lag\_all | .9961707 .0085879 -0.45 0.656 .9794801 1.013146

sp77\_315\_pp\_c\_lag\_all | .9833445 .0066746 -2.47 0.013 .9703491 .9965139

sp77\_400\_pp\_c\_lag\_all | .9999117 .0001569 -0.56 0.573 .9996043 1.000219

sp77\_401\_pp\_c\_lag\_all | 1.00078 .0010682 0.73 0.465 .9986888 1.002876

sp77\_402\_pp\_c\_lag\_all | .9987192 .0007456 -1.72 0.086 .9972589 1.000182

sp77\_403\_1\_pp\_c\_lag\_all | .9998181 .0010732 -0.17 0.865 .9977168 1.001924

sp77\_403\_2\_pp\_c\_lag\_all | .997692 .0046024 -0.50 0.616 .9887121 1.006753

sp77\_403\_pp\_c\_lag\_all | .9989155 .0027781 -0.39 0.696 .9934853 1.004375

sp77\_404\_pp\_c\_lag\_all | .9999307 .0001043 -0.66 0.506 .9997262 1.000135

sp77\_405\_pp\_c\_lag\_all | 1.00102 .001006 1.01 0.311 .9990499 1.002993

sp77\_408\_pp\_c\_lag\_all | 1.00044 .0019834 0.22 0.824 .99656 1.004335

sp77\_409\_pp\_c\_lag\_all | 1.000822 .0032059 0.26 0.798 .9945583 1.007125

sp77\_410\_pp\_c\_lag\_all | 1.000292 .0002116 1.38 0.167 .9998776 1.000707

sp77\_411\_pp\_c\_lag\_all | .9914546 .0089509 -0.95 0.342 .9740654 1.009154

sp77\_412\_pp\_c\_lag\_all | 1.000729 .0009628 0.76 0.449 .9988438 1.002618

sp77\_413\_pp\_c\_lag\_all | 1 (omitted)

sp77\_500\_pp\_c\_lag\_all | .9983773 .002482 -0.65 0.514 .9935246 1.003254

sp77\_501\_pp\_c\_lag\_all | 1.000088 .0011839 0.07 0.941 .9977698 1.002411

sp77\_502\_1\_pp\_c\_lag\_all | 1.000356 .0038488 0.09 0.926 .9928409 1.007928

sp77\_502\_2\_pp\_c\_lag\_all | 1.000416 .0008056 0.52 0.605 .9988387 1.001997

sp77\_502\_pp\_c\_lag\_all | 1.000231 .0001386 1.67 0.095 .9999596 1.000503

sp77\_503\_1\_pp\_c\_lag\_all | 1.001758 .0036385 0.48 0.629 .994652 1.008915

sp77\_503\_pp\_c\_lag\_all | .9983713 .0023145 -0.70 0.482 .9938453 1.002918

sp77\_504\_pp\_c\_lag\_all | 1.000283 .0005308 0.53 0.594 .9992428 1.001323

sp77\_505\_pp\_c\_lag\_all | .9994748 .0002991 -1.76 0.079 .9988887 1.000061

sp77\_506\_1\_pp\_c\_lag\_all | 1.000165 .0002896 0.57 0.569 .9995973 1.000733

sp77\_506\_pp\_c\_lag\_all | .999909 .0003336 -0.27 0.785 .9992554 1.000563

sp77\_507\_pp\_c\_lag\_all | 1.001248 .0018431 0.68 0.498 .9976425 1.004867

sp77\_508\_1\_pp\_c\_lag\_all | 1.00977 .003012 3.26 0.001 1.003884 1.01569

sp77\_508\_pp\_c\_lag\_all | .9967949 .0012196 -2.62 0.009 .9944074 .9991881

sp77\_509\_pp\_c\_lag\_all | .9990011 .0005153 -1.94 0.053 .9979917 1.000012

sp77\_510\_pp\_c\_lag\_all | .9793585 .0071914 -2.84 0.005 .9653646 .9935552

sp77\_511\_pp\_c\_lag\_all | .9991042 .002575 -0.35 0.728 .99407 1.004164

sp77\_512\_pp\_c\_lag\_all | .9994142 .0002447 -2.39 0.017 .9989348 .9998939

sp77\_513\_pp\_c\_lag\_all | 1.000119 .0004655 0.26 0.798 .9992074 1.001032

sp77\_514\_pp\_c\_lag\_all | .996423 .0039239 -0.91 0.363 .9887619 1.004144

sp77\_515\_pp\_c\_lag\_all | 1 (omitted)

sp77\_516\_pp\_c\_lag\_all | .9997008 .0001628 -1.84 0.066 .9993817 1.00002

sp77\_600\_pp\_c\_lag\_all | 1.002353 .0028309 0.83 0.405 .9968204 1.007917

sp77\_601\_pp\_c\_lag\_all | .9962835 .0044242 -0.84 0.402 .9876499 1.004993

sp77\_602\_pp\_c\_lag\_all | 1.005467 .0031198 1.76 0.079 .9993706 1.0116

sp77\_603\_pp\_c\_lag\_all | .9994539 .0028067 -0.19 0.846 .9939681 1.00497

sp77\_604\_pp\_c\_lag\_all | 1.001095 .0021301 0.51 0.607 .9969284 1.005278

sp77\_605\_pp\_c\_lag\_all | .9965599 .0096096 -0.36 0.721 .9779023 1.015573

sp77\_606\_1\_pp\_c\_lag\_all | .9850401 .0052637 -2.82 0.005 .9747773 .995411

sp77\_606\_pp\_c\_lag\_all | 1 (omitted)

sp77\_700\_1\_pp\_c\_lag\_all | 1.006403 .0027078 2.37 0.018 1.00111 1.011724

sp77\_700\_pp\_c\_lag\_all | 1.003339 .0014304 2.34 0.019 1.000539 1.006146

sp77\_701\_1\_pp\_c\_lag\_all | .9993063 .0016884 -0.41 0.681 .9960026 1.002621

sp77\_701\_2\_pp\_c\_lag\_all | .9981848 .0024763 -0.73 0.464 .993343 1.00305

sp77\_701\_pp\_c\_lag\_all | 1.000257 .0004132 0.62 0.534 .9994477 1.001067

sp75\_804\_pp\_c\_lag\_all | .9992152 .0011366 -0.69 0.490 .99699 1.001445

sp75\_805\_pp\_c\_lag\_all | 1.003632 .0020445 1.78 0.075 .9996332 1.007648

sp75\_806\_pp\_c\_lag\_all | 1.024202 .0054024 4.53 0.000 1.013668 1.034845

sp75\_807\_pp\_c\_lag\_all | 1.000131 .0001058 1.23 0.217 .9999231 1.000338

sp75\_808\_pp\_c\_lag\_all | 1.000816 .0012221 0.67 0.504 .9984237 1.003214

sp75\_809\_pp\_c\_lag\_all | 1.000475 .0004723 1.01 0.315 .9995495 1.001401

sp75\_810\_pp\_c\_lag\_all | 1.000541 .0005645 0.96 0.338 .9994351 1.001648

sp75\_811\_pp\_c\_lag\_all | 1.001615 .0004053 3.99 0.000 1.000821 1.00241

sp77\_703\_pp\_c\_lag\_all | .995883 .0040373 -1.02 0.309 .9880014 1.003827

sp77\_704\_1\_pp\_c\_lag\_all | 1.000643 .0013324 0.48 0.629 .9980352 1.003258

sp77\_704\_8\_pp\_c\_lag\_all | .9970349 .0021729 -1.36 0.173 .9927851 1.001303

sp77\_704\_9\_pp\_c\_lag\_all | .9862632 .0029726 -4.59 0.000 .9804542 .9921065

sp77\_704\_pp\_c\_lag\_all | 1.001114 .003814 0.29 0.770 .9936664 1.008617

sp77\_705\_pp\_c\_lag\_all | 1.000868 .000798 1.09 0.277 .9993049 1.002433

sp77\_800\_1\_pp\_c\_lag\_all | 1.008073 .002315 3.50 0.000 1.003546 1.012621

sp77\_800\_2\_pp\_c\_lag\_all | .9982517 .0017395 -1.00 0.315 .9948481 1.001667

sp77\_800\_pp\_c\_lag\_all | .9966539 .0023481 -1.42 0.155 .9920623 1.001267

sp77\_801\_pp\_c\_lag\_all | 1 (omitted)

sp77\_802\_pp\_c\_lag\_all | 1.000116 .0030226 0.04 0.969 .9942096 1.006058

sp77\_803\_pp\_c\_lag\_all | 1.002266 .0030495 0.74 0.457 .9963069 1.008261

sp77\_804\_pp\_c\_lag\_all | 1 (omitted)

sp77\_805\_pp\_c\_lag\_all | 1.002035 .0031344 0.65 0.516 .9959101 1.008197

sp77\_807\_1\_pp\_c\_lag\_all | .996132 .0035524 -1.09 0.277 .9891936 1.003119

sp77\_807\_2\_pp\_c\_lag\_all | 1.006555 .0021248 3.09 0.002 1.002399 1.010728

sp77\_807\_3\_pp\_c\_lag\_all | 1.00114 .0013998 0.81 0.415 .9984001 1.003887

sp77\_807\_pp\_c\_lag\_all | 1.000384 .00274 0.14 0.888 .9950282 1.005769

sp77\_808\_pp\_c\_lag\_all | .9990364 .0036903 -0.26 0.794 .9918298 1.006295

sp77\_809\_pp\_c\_lag\_all | .9981975 .0007484 -2.41 0.016 .9967317 .9996654

sp77\_810\_pp\_c\_lag\_all | 1.001013 .0017736 0.57 0.568 .9975426 1.004495

sp77\_900\_1\_pp\_c\_lag\_all | 1.001463 .0033636 0.44 0.663 .9948917 1.008077

sp77\_900\_2\_pp\_c\_lag\_all | .9993241 .001835 -0.37 0.713 .9957342 1.002927

sp77\_900\_pp\_c\_lag\_all | 1.000025 .0017509 0.01 0.989 .9965989 1.003462

sp77\_901\_1\_pp\_c\_lag\_all | .9799606 .0054692 -3.63 0.000 .9692996 .9907389

sp77\_901\_pp\_c\_lag\_all | .9985394 .0027268 -0.54 0.592 .9932092 1.003898

sp77\_902\_pp\_c\_lag\_all | .9973177 .0027521 -0.97 0.330 .9919383 1.002726

sp77\_903\_pp\_c\_lag\_all | 1.002449 .0026959 0.91 0.363 .9971788 1.007746

sp77\_904\_pp\_c\_lag\_all | .9989123 .0004715 -2.31 0.021 .9979887 .9998368

mine\_time | .9967164 .0039194 -0.84 0.403 .989064 1.004428

onsite\_insp\_hours | 1.000012 .0001285 0.10 0.924 .9997605 1.000264

|

state |

AL | .8871961 .2678057 -0.40 0.692 .4909973 1.603098

CO | .5603954 .2184674 -1.49 0.137 .2610105 1.203182

IL | .9170776 .1674237 -0.47 0.635 .6412227 1.311606

IN | .6421974 .1520841 -1.87 0.061 .4037275 1.021524

MD | 1.206722 .1904942 1.19 0.234 .8855963 1.644291

NM | 1.103831 .6477944 0.17 0.866 .3494352 3.486894

OH | .7039948 .1731315 -1.43 0.154 .4347462 1.139995

OK | .7748602 .5168509 -0.38 0.702 .2096288 2.86415

PA | .7718277 .1358182 -1.47 0.141 .546682 1.089698

TN | .667671 .1348482 -2.00 0.045 .4494144 .9919233

UT | 1.662748 .735982 1.15 0.251 .6983278 3.959075

VA | .829731 .1425676 -1.09 0.277 .5924893 1.161968

WV | .8974539 .103513 -0.94 0.348 .7158697 1.125098

WY | .6087166 .3416642 -0.88 0.376 .2026038 1.82887

|

time |

2007 | 1.155596 .1623697 1.03 0.303 .877417 1.52197

2007.25 | .9890096 .1473391 -0.07 0.941 .7385697 1.32437

2007.5 | 1.12922 .1518367 0.90 0.366 .8676103 1.469713

2007.75 | 1.140436 .1483621 1.01 0.312 .8837632 1.471654

2008 | .9576078 .1305831 -0.32 0.751 .7330179 1.25101

2008.25 | .879259 .1166894 -0.97 0.332 .6778773 1.140467

2008.5 | .9927465 .1215392 -0.06 0.953 .7809587 1.261969

2009 | .9607817 .1135263 -0.34 0.735 .7621605 1.211164

2009.25 | .9090383 .1201032 -0.72 0.470 .7016499 1.177725

2009.5 | 1.049148 .1522227 0.33 0.741 .7894681 1.394245

2009.75 | .7494587 .1066082 -2.03 0.043 .5671095 .9904407

2010 | .8949135 .1325247 -0.75 0.453 .6694676 1.196279

2010.25 | .9544821 .1381426 -0.32 0.748 .718742 1.267543

2010.5 | 1.003277 .1416021 0.02 0.982 .7608217 1.322998

2010.75 | .8815305 .1268732 -0.88 0.381 .6648584 1.168814

2011 | .9628105 .1337247 -0.27 0.785 .7333604 1.26405

2011.25 | .9378839 .1310487 -0.46 0.646 .7132017 1.233349

2011.5 | 1.059401 .1583682 0.39 0.699 .7903429 1.420055

2011.75 | .8936405 .1430676 -0.70 0.482 .6529645 1.223027

2012 | 1.0593 .152497 0.40 0.689 .7988773 1.404618

2012.25 | .8972565 .1326854 -0.73 0.463 .6714934 1.198924

2012.5 | .9503544 .1307167 -0.37 0.711 .7257831 1.244412

2012.75 | .9253736 .1471143 -0.49 0.626 .6776329 1.263687

2013 | .9276996 .1384143 -0.50 0.615 .6924791 1.242819

2013.25 | .7737788 .1204734 -1.65 0.100 .5702812 1.049892

2013.5 | 1.140022 .1737822 0.86 0.390 .8455864 1.53698

2013.75 | .9050492 .1428261 -0.63 0.527 .6642686 1.233107

2014 | .8559825 .1488685 -0.89 0.371 .6087345 1.203655

2014.25 | .9093569 .1593861 -0.54 0.588 .6449728 1.282116

2014.5 | .9404366 .1599041 -0.36 0.718 .6739043 1.312384

2014.75 | .9058893 .1527484 -0.59 0.558 .6509506 1.260672

2015 | .9245182 .1567006 -0.46 0.643 .6631955 1.288811

2015.25 | .9479754 .1668469 -0.30 0.761 .6714021 1.338479

2015.5 | 1.17063 .2125413 0.87 0.386 .8201145 1.670956

2015.75 | .832813 .1710939 -0.89 0.373 .55677 1.245716

2016 | .9719232 .1940415 -0.14 0.887 .6571918 1.43738

|

\_cons | .000011 1.58e-06 -79.44 0.000 8.31e-06 .0000146

ln(hours) | 1 (exposure)

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

/lnalpha | -18.58665 . . .

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

alpha | 8.47e-09 . . .

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(est1 stored)

**. lrtest pois nbin, stats force**

Likelihood-ratio test LR chi2(25) = -10994.41

(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 | 7,057 -6201.56 -5717.882 324 12083.76 14306.98

pois | 13,797 -12244.95 -11215.09 349 23128.17 25756.91

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

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

**. summ MR spcpp4\_yhat**

Variable | Obs Mean Std. Dev. Min Max

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

MR | 30,289 .4096207 .9550592 0 14

spcpp4\_yhat | 13,797 .6445536 .9239187 1.44e-13 11.3215