. // Model SP.B.SSV.4

**. eststo: logit MR\_indicator `subpart\_ss\_lag\_all\_vars' `covariates' ib(freq).state ib(freq).time, vce(cl mineid) offset(lnhours) iter(50) or**

note: sp47\_44\_ss\_c\_lag\_all != 0 predicts success perfectly

sp47\_44\_ss\_c\_lag\_all dropped and 10 obs not used

note: sp71\_701\_ss\_c\_lag\_all != 0 predicts success perfectly

sp71\_701\_ss\_c\_lag\_all dropped and 7 obs not used

note: sp72\_610\_ss\_c\_lag\_all != 0 predicts success perfectly

sp72\_610\_ss\_c\_lag\_all dropped and 3 obs not used

note: sp75\_1003\_1\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_1003\_1\_ss\_c\_lag\_all dropped and 37 obs not used

note: sp75\_1101\_20\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_1101\_20\_ss\_c\_lag\_all dropped and 2 obs not used

note: sp75\_1107\_14\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_1107\_14\_ss\_c\_lag\_all dropped and 3 obs not used

note: sp75\_1400\_2\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_1400\_2\_ss\_c\_lag\_all dropped and 11 obs not used

note: sp75\_1400\_4\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_1400\_4\_ss\_c\_lag\_all dropped and 2 obs not used

note: sp75\_1401\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_1401\_ss\_c\_lag\_all dropped and 14 obs not used

note: sp75\_1403\_11\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_1403\_11\_ss\_c\_lag\_all dropped and 9 obs not used

note: sp75\_1403\_4\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_1403\_4\_ss\_c\_lag\_all dropped and 11 obs not used

note: sp75\_1403\_9\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_1403\_9\_ss\_c\_lag\_all dropped and 38 obs not used

note: sp75\_1404\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_1404\_ss\_c\_lag\_all dropped and 3 obs not used

note: sp75\_150\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_150\_ss\_c\_lag\_all dropped and 8 obs not used

note: sp75\_155\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_155\_ss\_c\_lag\_all dropped and 3 obs not used

note: sp75\_1712\_6\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_1712\_6\_ss\_c\_lag\_all dropped and 1 obs not used

note: sp75\_1727\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_1727\_ss\_c\_lag\_all dropped and 1 obs not used

note: sp75\_513\_1\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_513\_1\_ss\_c\_lag\_all dropped and 9 obs not used

note: sp75\_705\_8\_ss\_c\_lag\_all != 0 predicts failure perfectly

sp75\_705\_8\_ss\_c\_lag\_all dropped and 1 obs not used

note: sp75\_800\_4\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_800\_4\_ss\_c\_lag\_all dropped and 2 obs not used

note: sp75\_814\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_814\_ss\_c\_lag\_all dropped and 4 obs not used

note: sp75\_818\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_818\_ss\_c\_lag\_all dropped and 14 obs not used

note: sp75\_819\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_819\_ss\_c\_lag\_all dropped and 8 obs not used

note: sp75\_831\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_831\_ss\_c\_lag\_all dropped and 4 obs not used

note: sp75\_902\_1\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_902\_1\_ss\_c\_lag\_all dropped and 14 obs not used

note: sp77\_1438\_ss\_c\_lag\_all != 0 predicts success perfectly

sp77\_1438\_ss\_c\_lag\_all dropped and 10 obs not used

note: sp77\_1802\_ss\_c\_lag\_all != 0 predicts success perfectly

sp77\_1802\_ss\_c\_lag\_all dropped and 7 obs not used

note: sp77\_1906\_ss\_c\_lag\_all != 0 predicts success perfectly

sp77\_1906\_ss\_c\_lag\_all dropped and 6 obs not used

note: sp77\_203\_ss\_c\_lag\_all != 0 predicts success perfectly

sp77\_203\_ss\_c\_lag\_all dropped and 35 obs not used

note: sp77\_511\_ss\_c\_lag\_all != 0 predicts success perfectly

sp77\_511\_ss\_c\_lag\_all dropped and 9 obs not used

note: sp77\_605\_ss\_c\_lag\_all != 0 predicts failure perfectly

sp77\_605\_ss\_c\_lag\_all dropped and 6 obs not used

note: sp77\_700\_1\_ss\_c\_lag\_all != 0 predicts failure perfectly

sp77\_700\_1\_ss\_c\_lag\_all dropped and 1 obs not used

note: sp75\_806\_ss\_c\_lag\_all != 0 predicts success perfectly

sp75\_806\_ss\_c\_lag\_all dropped and 11 obs not used

note: sp77\_704\_1\_ss\_c\_lag\_all != 0 predicts success perfectly

sp77\_704\_1\_ss\_c\_lag\_all dropped and 12 obs not used

note: sp77\_704\_8\_ss\_c\_lag\_all != 0 predicts success perfectly

sp77\_704\_8\_ss\_c\_lag\_all dropped and 1 obs not used

note: sp77\_808\_ss\_c\_lag\_all != 0 predicts failure perfectly

sp77\_808\_ss\_c\_lag\_all dropped and 1 obs not used

note: sp77\_900\_1\_ss\_c\_lag\_all != 0 predicts success perfectly

sp77\_900\_1\_ss\_c\_lag\_all dropped and 13 obs not used

note: 17.state != 0 predicts success perfectly

17.state dropped and 5 obs not used

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

note: sp75\_1403\_3\_ss\_c\_lag\_all omitted because of collinearity

note: sp75\_1432\_ss\_c\_lag\_all omitted because of collinearity

note: sp77\_1106\_ss\_c\_lag\_all omitted because of collinearity

note: sp77\_413\_ss\_c\_lag\_all omitted because of collinearity

note: sp77\_502\_1\_ss\_c\_lag\_all omitted because of collinearity

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

note: sp77\_801\_1\_ss\_c\_lag\_all omitted because of collinearity

note: sp77\_901\_1\_ss\_c\_lag\_all omitted because of collinearity

Iteration 0: log pseudolikelihood = -3034.1437

Iteration 1: log pseudolikelihood = -2749.3124

Iteration 2: log pseudolikelihood = -2724.2666

Iteration 3: log pseudolikelihood = -2719.4917

Iteration 4: log pseudolikelihood = -2715.2246

Iteration 5: log pseudolikelihood = -2714.7094

Iteration 6: log pseudolikelihood = -2714.5565

Iteration 7: log pseudolikelihood = -2714.5192

Iteration 8: log pseudolikelihood = -2714.5095

Iteration 9: log pseudolikelihood = -2714.5072

Iteration 10: log pseudolikelihood = -2714.5067

Iteration 11: log pseudolikelihood = -2714.5065

Iteration 12: log pseudolikelihood = -2714.5065

Logistic regression Number of obs = 5,917

Wald chi2(264) = .

Log pseudolikelihood = -2714.5065 Prob > chi2 = .

(Std. Err. adjusted for 1,225 clusters in mineid)

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| Robust

MR\_indicator | Odds Ratio Std. Err. z P>|z| [95% Conf. Interval]

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

sp47\_41\_ss\_c\_lag\_all | .4331815 .1922059 -1.89 0.059 .1815455 1.033604

sp47\_44\_ss\_c\_lag\_all | 1 (omitted)

sp48\_11\_ss\_c\_lag\_all | 1.086833 .0725367 1.25 0.212 .9535701 1.23872

sp48\_25\_ss\_c\_lag\_all | .918341 .0594399 -1.32 0.188 .8089278 1.042553

sp48\_26\_ss\_c\_lag\_all | 1.121572 .0603455 2.13 0.033 1.00932 1.246308

sp48\_27\_ss\_c\_lag\_all | 1.033369 .0499531 0.68 0.497 .939958 1.136063

sp48\_28\_ss\_c\_lag\_all | .8841101 .0543792 -2.00 0.045 .7837026 .9973817

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

sp48\_5\_ss\_c\_lag\_all | 1.007438 .0851814 0.09 0.930 .8535861 1.189021

sp48\_6\_ss\_c\_lag\_all | 1.037622 .0606537 0.63 0.528 .9252997 1.163578

sp48\_7\_ss\_c\_lag\_all | 1.004608 .0590667 0.08 0.938 .8952608 1.127311

sp48\_8\_ss\_c\_lag\_all | 1.007428 .0952237 0.08 0.938 .8370612 1.21247

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

sp72\_503\_ss\_c\_lag\_all | .5779692 .1687955 -1.88 0.060 .3260707 1.024466

sp72\_610\_ss\_c\_lag\_all | 1 (omitted)

sp72\_620\_ss\_c\_lag\_all | .8119711 .1197759 -1.41 0.158 .6081037 1.084185

sp72\_630\_ss\_c\_lag\_all | .99247 .0067717 -1.11 0.268 .9792861 1.005831

sp75\_100\_ss\_c\_lag\_all | .8861062 .2197561 -0.49 0.626 .5449869 1.440739

sp75\_1001\_1\_ss\_c\_lag\_all | 220.8705 226.5818 5.26 0.000 29.57504 1649.491

sp75\_1001\_ss\_c\_lag\_all | 1.335492 .1316873 2.93 0.003 1.100799 1.620223

sp75\_1003\_1\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1100\_2\_ss\_c\_lag\_all | 1.001496 .0163071 0.09 0.927 .9700395 1.033973

sp75\_1101\_20\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1102\_ss\_c\_lag\_all | .977229 .0326719 -0.69 0.491 .9152462 1.043409

sp75\_1103\_4\_ss\_c\_lag\_all | .9919973 .0203716 -0.39 0.696 .9528627 1.032739

sp75\_1104\_ss\_c\_lag\_all | 1.008314 .098626 0.08 0.933 .8324106 1.22139

sp75\_1106\_2\_ss\_c\_lag\_all | 1.004294 .052368 0.08 0.935 .9067249 1.112361

sp75\_1106\_3\_ss\_c\_lag\_all | 1.033541 .0212693 1.60 0.109 .992683 1.07608

sp75\_1106\_4\_ss\_c\_lag\_all | 1.257277 .1656944 1.74 0.082 .9710748 1.627832

sp75\_1106\_5\_ss\_c\_lag\_all | .9302221 .0378313 -1.78 0.075 .8589522 1.007405

sp75\_1106\_6\_ss\_c\_lag\_all | .4621971 .1543617 -2.31 0.021 .2401863 .8894184

sp75\_1106\_ss\_c\_lag\_all | 1.066565 .1644288 0.42 0.676 .7884255 1.442827

sp75\_1107\_14\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1400\_1\_ss\_c\_lag\_all | .7538205 .1895742 -1.12 0.261 .4604728 1.234048

sp75\_1400\_2\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1400\_3\_ss\_c\_lag\_all | .7981741 .0903048 -1.99 0.046 .6394305 .9963269

sp75\_1400\_4\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1400\_ss\_c\_lag\_all | .9344424 .0756301 -0.84 0.402 .7973696 1.095079

sp75\_1401\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1403\_10\_ss\_c\_lag\_all | .9950054 .0260941 -0.19 0.849 .9451541 1.047486

sp75\_1403\_11\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1403\_3\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1403\_4\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1403\_5\_ss\_c\_lag\_all | .978835 .0111372 -1.88 0.060 .957248 1.000909

sp75\_1403\_6\_ss\_c\_lag\_all | .959443 .0125358 -3.17 0.002 .9351852 .9843299

sp75\_1403\_7\_ss\_c\_lag\_all | 1.01703 .0653239 0.26 0.793 .8967285 1.15347

sp75\_1403\_8\_ss\_c\_lag\_all | .9646957 .0341636 -1.01 0.310 .9000073 1.034034

sp75\_1403\_9\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1404\_1\_ss\_c\_lag\_all | .6584652 .1557328 -1.77 0.077 .4142058 1.046765

sp75\_1404\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1405\_1\_ss\_c\_lag\_all | .6870533 .0791985 -3.26 0.001 .5481129 .8612134

sp75\_1405\_ss\_c\_lag\_all | 1.09546 .0337742 2.96 0.003 1.031224 1.163697

sp75\_1431\_ss\_c\_lag\_all | 2.147733 1.58345 1.04 0.300 .5063125 9.110496

sp75\_1432\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1433\_ss\_c\_lag\_all | 1.037328 .3112056 0.12 0.903 .5761685 1.867594

sp75\_1434\_ss\_c\_lag\_all | .6976196 .1385882 -1.81 0.070 .4726286 1.029716

sp75\_1435\_ss\_c\_lag\_all | .1602909 .104388 -2.81 0.005 .0447272 .5744421

sp75\_1437\_ss\_c\_lag\_all | 1.117971 .4483366 0.28 0.781 .5094195 2.453496

sp75\_150\_ss\_c\_lag\_all | 1 (omitted)

sp75\_151\_ss\_c\_lag\_all | .6287374 .2281414 -1.28 0.201 .3087489 1.280363

sp75\_153\_ss\_c\_lag\_all | 9.75e-06 .000049 -2.30 0.022 5.16e-10 .1843809

sp75\_155\_ss\_c\_lag\_all | 1 (omitted)

sp75\_156\_ss\_c\_lag\_all | .5904919 .1095549 -2.84 0.005 .4104773 .8494517

sp75\_1600\_2\_ss\_c\_lag\_all | .9565333 .0952757 -0.45 0.655 .7868935 1.162744

sp75\_1712\_10\_ss\_c\_lag\_all | .8873352 .4732916 -0.22 0.823 .3119387 2.524097

sp75\_1712\_6\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1720\_ss\_c\_lag\_all | 1.002616 .0209251 0.13 0.900 .9624311 1.044479

sp75\_1721\_ss\_c\_lag\_all | 1.058604 .096135 0.63 0.531 .8859996 1.264835

sp75\_1725\_ss\_c\_lag\_all | 1.003188 .0035709 0.89 0.371 .9962132 1.010211

sp75\_1726\_ss\_c\_lag\_all | 1.100186 .0794923 1.32 0.186 .9549135 1.26756

sp75\_1727\_ss\_c\_lag\_all | 1 (omitted)

sp75\_1728\_ss\_c\_lag\_all | .9762268 .0900776 -0.26 0.794 .8147218 1.169747

sp75\_1729\_ss\_c\_lag\_all | .9013249 .1331396 -0.70 0.482 .6747545 1.203974

sp75\_1730\_ss\_c\_lag\_all | .8815439 .1359117 -0.82 0.413 .6516438 1.192553

sp75\_1731\_ss\_c\_lag\_all | .9960283 .0043292 -0.92 0.360 .9875792 1.00455

sp75\_1903\_ss\_c\_lag\_all | .6176629 .1217341 -2.44 0.014 .4197491 .9088941

sp75\_1909\_ss\_c\_lag\_all | .9782992 .0117631 -1.82 0.068 .9555135 1.001628

sp75\_1910\_ss\_c\_lag\_all | 1.026801 .0254484 1.07 0.286 .9781148 1.07791

sp75\_1911\_ss\_c\_lag\_all | .9878472 .0279089 -0.43 0.665 .9346336 1.044091

sp75\_1912\_ss\_c\_lag\_all | 1.109613 .1215508 0.95 0.342 .8952158 1.375355

sp75\_1913\_ss\_c\_lag\_all | 1.316644 .1838808 1.97 0.049 1.001361 1.731196

sp75\_1914\_ss\_c\_lag\_all | 1.024304 .0130672 1.88 0.060 .9990106 1.050239

sp75\_1915\_ss\_c\_lag\_all | .6178446 .1021598 -2.91 0.004 .4468216 .8543274

sp75\_202\_ss\_c\_lag\_all | 1.002479 .0014553 1.71 0.088 .9996308 1.005336

sp75\_208\_ss\_c\_lag\_all | .9953417 .0094662 -0.49 0.623 .9769602 1.014069

sp75\_211\_ss\_c\_lag\_all | 1.015613 .0161801 0.97 0.331 .9843905 1.047826

sp75\_212\_ss\_c\_lag\_all | 1.070588 .0533798 1.37 0.171 .9709148 1.180493

sp75\_214\_ss\_c\_lag\_all | 1.141641 .1055126 1.43 0.152 .9524889 1.368357

sp75\_312\_ss\_c\_lag\_all | .9149061 .0734651 -1.11 0.268 .781676 1.070844

sp75\_320\_ss\_c\_lag\_all | .9422253 .1043115 -0.54 0.591 .7584383 1.170548

sp75\_324\_ss\_c\_lag\_all | .8947416 .0383431 -2.60 0.009 .82266 .9731389

sp75\_337\_ss\_c\_lag\_all | .9221658 .0554581 -1.35 0.178 .8196315 1.037527

sp75\_340\_ss\_c\_lag\_all | 1.025627 .0176998 1.47 0.143 .9915157 1.060911

sp75\_342\_ss\_c\_lag\_all | .9993977 .0086939 -0.07 0.945 .9825024 1.016584

sp75\_344\_ss\_c\_lag\_all | 1.010678 .1493138 0.07 0.943 .7565879 1.350101

sp75\_352\_ss\_c\_lag\_all | 1.100568 .081238 1.30 0.194 .952326 1.271885

sp75\_382\_ss\_c\_lag\_all | 1.049426 .1360283 0.37 0.710 .8139876 1.352963

sp75\_503\_ss\_c\_lag\_all | 1.001392 .0024453 0.57 0.569 .9966105 1.006196

sp75\_504\_ss\_c\_lag\_all | 1.029156 .0873615 0.34 0.735 .8714159 1.215449

sp75\_505\_ss\_c\_lag\_all | 1.005481 .1500863 0.04 0.971 .750441 1.347197

sp75\_506\_1\_ss\_c\_lag\_all | .9346228 .0932481 -0.68 0.498 .7686192 1.136479

sp75\_506\_ss\_c\_lag\_all | 1.341128 .1994964 1.97 0.048 1.001963 1.7951

sp75\_507\_ss\_c\_lag\_all | 1.023602 .0503552 0.47 0.635 .9295161 1.127211

sp75\_511\_1\_ss\_c\_lag\_all | .7668461 .1362424 -1.49 0.135 .5413507 1.08627

sp75\_511\_ss\_c\_lag\_all | 1.004005 .0329905 0.12 0.903 .9413835 1.070793

sp75\_512\_1\_ss\_c\_lag\_all | .953897 .4720277 -0.10 0.924 .3616527 2.516003

sp75\_512\_2\_ss\_c\_lag\_all | .9523662 .042643 -1.09 0.276 .87235 1.039722

sp75\_512\_ss\_c\_lag\_all | 1.003354 .00565 0.59 0.552 .9923413 1.014489

sp75\_513\_1\_ss\_c\_lag\_all | 1 (omitted)

sp75\_513\_ss\_c\_lag\_all | .8771867 .0750592 -1.53 0.126 .7417478 1.037356

sp75\_514\_ss\_c\_lag\_all | .9693108 .0233411 -1.29 0.196 .9246258 1.016155

sp75\_515\_ss\_c\_lag\_all | .9918217 .0190309 -0.43 0.669 .9552145 1.029832

sp75\_516\_1\_ss\_c\_lag\_all | 1.549365 .438393 1.55 0.122 .8898281 2.697748

sp75\_516\_2\_ss\_c\_lag\_all | 2.072889 .7291847 2.07 0.038 1.040272 4.130523

sp75\_516\_ss\_c\_lag\_all | 1.001463 .0486201 0.03 0.976 .9105628 1.101438

sp75\_517\_1\_ss\_c\_lag\_all | .9112449 .2260913 -0.37 0.708 .5603267 1.481934

sp75\_517\_ss\_c\_lag\_all | .9984924 .0018882 -0.80 0.425 .9947985 1.0022

sp75\_518\_1\_ss\_c\_lag\_all | .9284272 .0305329 -2.26 0.024 .8704717 .9902413

sp75\_518\_ss\_c\_lag\_all | 1.023528 .0221581 1.07 0.283 .9810069 1.067891

sp75\_519\_ss\_c\_lag\_all | 8.987995 47.33461 0.42 0.677 .0002957 273182.7

sp75\_520\_ss\_c\_lag\_all | 1.045975 .0277525 1.69 0.090 .9929709 1.101808

sp75\_523\_1\_ss\_c\_lag\_all | 1.015147 .0167559 0.91 0.362 .9828313 1.048525

sp75\_523\_2\_ss\_c\_lag\_all | .9918628 .0101314 -0.80 0.424 .9722032 1.01192

sp75\_523\_ss\_c\_lag\_all | 1.001956 .0124099 0.16 0.875 .9779256 1.026576

sp75\_600\_1\_ss\_c\_lag\_all | .9696134 .0924286 -0.32 0.746 .8043733 1.168798

sp75\_600\_ss\_c\_lag\_all | .0027573 .0014642 -11.10 0.000 .0009738 .0078074

sp75\_601\_1\_ss\_c\_lag\_all | 1.021694 .013928 1.57 0.115 .9947568 1.04936

sp75\_601\_2\_ss\_c\_lag\_all | 317.5546 169.4419 10.80 0.000 111.5915 903.6612

sp75\_601\_3\_ss\_c\_lag\_all | 1.05002 .3041178 0.17 0.866 .5952009 1.852386

sp75\_601\_ss\_c\_lag\_all | .9804032 .0180278 -1.08 0.282 .9456985 1.016381

sp75\_602\_ss\_c\_lag\_all | 1.025631 .0460948 0.56 0.573 .9391514 1.120073

sp75\_603\_ss\_c\_lag\_all | 1.069569 .0731417 0.98 0.325 .9354061 1.222975

sp75\_604\_ss\_c\_lag\_all | 1.000591 .0034445 0.17 0.864 .9938625 1.007365

sp75\_605\_ss\_c\_lag\_all | 1.039814 .0180348 2.25 0.024 1.005061 1.07577

sp75\_606\_ss\_c\_lag\_all | .9853598 .0069164 -2.10 0.036 .9718967 .9990094

sp75\_607\_ss\_c\_lag\_all | .9515202 .0326699 -1.45 0.148 .8895954 1.017756

sp75\_700\_1\_ss\_c\_lag\_all | 1.157599 .1566585 1.08 0.280 .8879014 1.509217

sp75\_700\_ss\_c\_lag\_all | 1.085546 .0578893 1.54 0.124 .9778133 1.205148

sp75\_701\_1\_ss\_c\_lag\_all | .9505489 .0521883 -0.92 0.356 .853573 1.058542

sp75\_701\_2\_ss\_c\_lag\_all | .8980845 .1341924 -0.72 0.472 .6700853 1.203661

sp75\_701\_3\_ss\_c\_lag\_all | .8825756 .0610864 -1.80 0.071 .7706143 1.010804

sp75\_701\_4\_ss\_c\_lag\_all | 15713.65 18719.39 8.11 0.000 1521.444 162292.5

sp75\_701\_ss\_c\_lag\_all | 1.025516 .0135727 1.90 0.057 .9992559 1.052466

sp75\_703\_2\_ss\_c\_lag\_all | 1.255026 .2108069 1.35 0.176 .902976 1.744332

sp75\_703\_3\_ss\_c\_lag\_all | 1.116026 .1696878 0.72 0.470 .8284227 1.503476

sp75\_703\_ss\_c\_lag\_all | .9402572 .0285049 -2.03 0.042 .886016 .997819

sp75\_704\_ss\_c\_lag\_all | .8806657 .160038 -0.70 0.484 .6167759 1.257462

sp75\_705\_1\_ss\_c\_lag\_all | 1.262085 .2033587 1.44 0.149 .9203122 1.730781

sp75\_705\_8\_ss\_c\_lag\_all | 1 (omitted)

sp75\_705\_ss\_c\_lag\_all | .8248738 .1337768 -1.19 0.235 .6002622 1.133533

sp75\_706\_ss\_c\_lag\_all | .7122314 .0613727 -3.94 0.000 .6015524 .8432742

sp75\_800\_2\_ss\_c\_lag\_all | .9722206 .0306582 -0.89 0.372 .9139508 1.034205

sp75\_800\_3\_ss\_c\_lag\_all | .9948619 .1486126 -0.03 0.972 .7423525 1.333262

sp75\_800\_4\_ss\_c\_lag\_all | 1 (omitted)

sp75\_800\_ss\_c\_lag\_all | .954745 .0673773 -0.66 0.512 .8314138 1.096371

sp75\_801\_ss\_c\_lag\_all | 1.226194 .2107505 1.19 0.235 .875508 1.717348

sp75\_802\_ss\_c\_lag\_all | .8565699 .1301471 -1.02 0.308 .6359623 1.153704

sp75\_803\_2\_ss\_c\_lag\_all | .6381555 .0785088 -3.65 0.000 .501427 .8121668

sp75\_803\_ss\_c\_lag\_all | 1.047499 .057543 0.84 0.398 .9405765 1.166577

sp75\_812\_ss\_c\_lag\_all | 1.389669 .2392514 1.91 0.056 .9916648 1.947412

sp75\_814\_ss\_c\_lag\_all | 1 (omitted)

sp75\_815\_ss\_c\_lag\_all | .8742623 .1335019 -0.88 0.379 .6481288 1.179294

sp75\_816\_ss\_c\_lag\_all | .9376746 .0538534 -1.12 0.263 .837848 1.049395

sp75\_818\_ss\_c\_lag\_all | 1 (omitted)

sp75\_819\_ss\_c\_lag\_all | 1 (omitted)

sp75\_820\_ss\_c\_lag\_all | 1.16834 .2445423 0.74 0.457 .7751872 1.76089

sp75\_821\_ss\_c\_lag\_all | .526014 .1242846 -2.72 0.007 .3310385 .8358264

sp75\_825\_ss\_c\_lag\_all | .3801634 .0936514 -3.93 0.000 .2345745 .6161121

sp75\_827\_ss\_c\_lag\_all | 2.249409 .5978758 3.05 0.002 1.336059 3.78714

sp75\_831\_ss\_c\_lag\_all | 1 (omitted)

sp75\_900\_2\_ss\_c\_lag\_all | .6442389 .1527619 -1.85 0.064 .4047716 1.025378

sp75\_900\_3\_ss\_c\_lag\_all | 1.172193 .157117 1.19 0.236 .9013774 1.524373

sp75\_900\_4\_ss\_c\_lag\_all | 1.354074 .1678191 2.45 0.014 1.062056 1.726383

sp75\_900\_ss\_c\_lag\_all | .9858735 .0143679 -0.98 0.329 .9581114 1.01444

sp75\_901\_ss\_c\_lag\_all | .9045145 .0617016 -1.47 0.141 .7913174 1.033904

sp75\_902\_1\_ss\_c\_lag\_all | 1 (omitted)

sp75\_902\_2\_ss\_c\_lag\_all | 1.10921 .0914417 1.26 0.209 .943717 1.303724

sp75\_902\_4\_ss\_c\_lag\_all | 1.093249 .0904583 1.08 0.281 .9295833 1.28573

sp75\_902\_ss\_c\_lag\_all | 1.030154 .0250085 1.22 0.221 .9822863 1.080355

sp75\_903\_ss\_c\_lag\_all | 1.05744 .0352439 1.68 0.094 .9905707 1.128822

sp75\_904\_ss\_c\_lag\_all | 1.014686 .010678 1.39 0.166 .9939714 1.035831

sp75\_905\_ss\_c\_lag\_all | .6278738 .0718597 -4.07 0.000 .5017103 .7857632

sp75\_907\_ss\_c\_lag\_all | 1.041845 .0799613 0.53 0.593 .8963419 1.210968

sp77\_103\_ss\_c\_lag\_all | 1.169739 .0719051 2.55 0.011 1.036967 1.319512

sp77\_1103\_ss\_c\_lag\_all | .983268 .0408204 -0.41 0.684 .9064299 1.06662

sp77\_1104\_ss\_c\_lag\_all | 1.000621 .0066057 0.09 0.925 .9877577 1.013652

sp77\_1106\_ss\_c\_lag\_all | 1 (omitted)

sp77\_1111\_ss\_c\_lag\_all | 2.11e-10 8.05e-10 -5.83 0.000 1.18e-13 3.75e-07

sp77\_1112\_ss\_c\_lag\_all | 1.169042 .139322 1.31 0.190 .925523 1.476635

sp77\_1403\_ss\_c\_lag\_all | .9178788 .2701667 -0.29 0.771 .5155186 1.63428

sp77\_1433\_ss\_c\_lag\_all | 42051.69 70183.54 6.38 0.000 1596.403 1107705

sp77\_1434\_ss\_c\_lag\_all | 1.09869 .2073266 0.50 0.618 .7590152 1.590376

sp77\_1437\_ss\_c\_lag\_all | 7.812825 6.086248 2.64 0.008 1.697133 35.96668

sp77\_1438\_ss\_c\_lag\_all | 1 (omitted)

sp77\_1605\_ss\_c\_lag\_all | 1.001231 .0087764 0.14 0.888 .9841762 1.018581

sp77\_1606\_ss\_c\_lag\_all | .990241 .0114182 -0.85 0.395 .9681128 1.012875

sp77\_1710\_ss\_c\_lag\_all | .9957957 .0242632 -0.17 0.863 .9493583 1.044504

sp77\_1802\_ss\_c\_lag\_all | 1 (omitted)

sp77\_1906\_ss\_c\_lag\_all | 1 (omitted)

sp77\_1915\_ss\_c\_lag\_all | 1.138389 .1319366 1.12 0.263 .9070653 1.428706

sp77\_1916\_ss\_c\_lag\_all | .7015849 .2829664 -0.88 0.380 .318251 1.546645

sp77\_200\_ss\_c\_lag\_all | 1.013705 .0422742 0.33 0.744 .9341451 1.100042

sp77\_202\_ss\_c\_lag\_all | .9349507 .0214991 -2.93 0.003 .8937487 .9780521

sp77\_203\_ss\_c\_lag\_all | 1 (omitted)

sp77\_204\_ss\_c\_lag\_all | 1.124648 .0574876 2.30 0.022 1.017435 1.243159

sp77\_205\_ss\_c\_lag\_all | 1.012051 .010845 1.12 0.264 .9910169 1.033532

sp77\_206\_ss\_c\_lag\_all | 1.049142 .0724868 0.69 0.487 .9162703 1.201283

sp77\_207\_ss\_c\_lag\_all | 1.074689 .0500926 1.55 0.122 .9808603 1.177493

sp77\_208\_ss\_c\_lag\_all | 1.005461 .0216362 0.25 0.800 .9639361 1.048774

sp77\_210\_ss\_c\_lag\_all | 1.070369 .1116638 0.65 0.514 .8724366 1.313207

sp77\_216\_ss\_c\_lag\_all | 3151.726 8114.09 3.13 0.002 20.28326 489732.7

sp77\_315\_ss\_c\_lag\_all | .8940495 .9656934 -0.10 0.917 .1076341 7.426317

sp77\_400\_ss\_c\_lag\_all | .9931937 .0094724 -0.72 0.474 .9748006 1.011934

sp77\_401\_ss\_c\_lag\_all | 1.011008 .0600385 0.18 0.854 .8999241 1.135803

sp77\_402\_ss\_c\_lag\_all | .9252681 .0524511 -1.37 0.171 .827971 1.033999

sp77\_403\_1\_ss\_c\_lag\_all | 1.21201 .1784006 1.31 0.191 .9082685 1.617327

sp77\_403\_ss\_c\_lag\_all | .9783129 .2602085 -0.08 0.934 .5808686 1.647698

sp77\_404\_ss\_c\_lag\_all | 1.009331 .0061943 1.51 0.130 .9972632 1.021545

sp77\_405\_ss\_c\_lag\_all | .9504179 .071104 -0.68 0.497 .8207924 1.100515

sp77\_408\_ss\_c\_lag\_all | 1.173332 .115738 1.62 0.105 .9670707 1.423587

sp77\_409\_ss\_c\_lag\_all | 7449.195 4104.35 16.18 0.000 2529.969 21933.28

sp77\_410\_ss\_c\_lag\_all | 1.021602 .0156849 1.39 0.164 .9913181 1.052811

sp77\_411\_ss\_c\_lag\_all | .4816757 .1141904 -3.08 0.002 .3026643 .7665638

sp77\_412\_ss\_c\_lag\_all | 1.463723 .2739927 2.04 0.042 1.0142 2.112489

sp77\_413\_ss\_c\_lag\_all | 1 (omitted)

sp77\_500\_ss\_c\_lag\_all | .74063 .2114311 -1.05 0.293 .4232577 1.295978

sp77\_501\_ss\_c\_lag\_all | 1.081651 .1001975 0.85 0.397 .9020636 1.296992

sp77\_502\_1\_ss\_c\_lag\_all | 1 (omitted)

sp77\_502\_2\_ss\_c\_lag\_all | 1.076032 .1063545 0.74 0.458 .8865285 1.306043

sp77\_502\_ss\_c\_lag\_all | 1.002717 .010303 0.26 0.792 .9827255 1.023115

sp77\_503\_1\_ss\_c\_lag\_all | .548768 .1031096 -3.19 0.001 .3797119 .7930918

sp77\_503\_ss\_c\_lag\_all | .7968238 .1145144 -1.58 0.114 .6012196 1.056067

sp77\_504\_ss\_c\_lag\_all | .9360772 .0388521 -1.59 0.111 .8629434 1.015409

sp77\_505\_ss\_c\_lag\_all | .9426943 .0315439 -1.76 0.078 .8828531 1.006592

sp77\_506\_1\_ss\_c\_lag\_all | .9721687 .1158866 -0.24 0.813 .7696173 1.228029

sp77\_506\_ss\_c\_lag\_all | .9923134 .0594559 -0.13 0.898 .8823642 1.115963

sp77\_507\_ss\_c\_lag\_all | 1.122436 .1059637 1.22 0.221 .9328332 1.350577

sp77\_508\_1\_ss\_c\_lag\_all | 1.175199 .1928523 0.98 0.325 .851977 1.621046

sp77\_508\_ss\_c\_lag\_all | .9265412 .1216889 -0.58 0.561 .71626 1.198557

sp77\_509\_ss\_c\_lag\_all | .9621953 .0400483 -0.93 0.354 .8868185 1.043979

sp77\_510\_ss\_c\_lag\_all | .3587574 .1349075 -2.73 0.006 .1716778 .7497

sp77\_511\_ss\_c\_lag\_all | 1 (omitted)

sp77\_512\_ss\_c\_lag\_all | 1.003451 .0298132 0.12 0.908 .9466866 1.063618

sp77\_513\_ss\_c\_lag\_all | .9939109 .0384434 -0.16 0.875 .9213485 1.072188

sp77\_514\_ss\_c\_lag\_all | .0008235 .0007498 -7.80 0.000 .0001383 .0049051

sp77\_515\_ss\_c\_lag\_all | .654733 .1973726 -1.40 0.160 .3626312 1.182125

sp77\_516\_ss\_c\_lag\_all | .9532252 .0224433 -2.03 0.042 .9102368 .9982439

sp77\_600\_ss\_c\_lag\_all | .9945163 .2033569 -0.03 0.979 .6661312 1.484787

sp77\_601\_ss\_c\_lag\_all | 1.149372 .1811339 0.88 0.377 .8439501 1.565326

sp77\_602\_ss\_c\_lag\_all | 1.074857 .18972 0.41 0.683 .7605147 1.519126

sp77\_603\_ss\_c\_lag\_all | 1.237582 .1853992 1.42 0.155 .9226941 1.659933

sp77\_604\_ss\_c\_lag\_all | 1.064326 .1074215 0.62 0.537 .8733007 1.297137

sp77\_605\_ss\_c\_lag\_all | 1 (omitted)

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

sp77\_700\_1\_ss\_c\_lag\_all | 1 (omitted)

sp77\_700\_ss\_c\_lag\_all | 1.061696 .1888938 0.34 0.737 .7491293 1.504677

sp77\_701\_1\_ss\_c\_lag\_all | 1.085026 .098834 0.90 0.370 .9076216 1.297105

sp77\_701\_2\_ss\_c\_lag\_all | .9029689 .082906 -1.11 0.266 .7542578 1.081

sp77\_701\_ss\_c\_lag\_all | 1.060159 .0266927 2.32 0.020 1.009112 1.113788

sp75\_804\_ss\_c\_lag\_all | 1.026152 .0486894 0.54 0.586 .9350254 1.12616

sp75\_805\_ss\_c\_lag\_all | .9161536 .0532897 -1.51 0.132 .8174415 1.026786

sp75\_806\_ss\_c\_lag\_all | 1 (omitted)

sp75\_807\_ss\_c\_lag\_all | 1.002613 .0178682 0.15 0.884 .9681961 1.038253

sp75\_808\_ss\_c\_lag\_all | 1.014665 .0727973 0.20 0.839 .8815623 1.167864

sp75\_809\_ss\_c\_lag\_all | .9247999 .0371263 -1.95 0.051 .8548228 1.000505

sp75\_810\_ss\_c\_lag\_all | .9411553 .0458933 -1.24 0.214 .8553708 1.035543

sp75\_811\_ss\_c\_lag\_all | .7248973 .0811718 -2.87 0.004 .5820515 .9027998

sp77\_704\_1\_ss\_c\_lag\_all | 1 (omitted)

sp77\_704\_8\_ss\_c\_lag\_all | 1 (omitted)

sp77\_704\_9\_ss\_c\_lag\_all | 1.319759 .1939133 1.89 0.059 .989525 1.760201

sp77\_704\_ss\_c\_lag\_all | 1.122828 .3618029 0.36 0.719 .5970832 2.111501

sp77\_705\_ss\_c\_lag\_all | .9740177 .1008499 -0.25 0.799 .7951212 1.193165

sp77\_800\_1\_ss\_c\_lag\_all | 1.51983 .381406 1.67 0.095 .9293586 2.485459

sp77\_800\_2\_ss\_c\_lag\_all | 1.627639 .4345119 1.82 0.068 .9645454 2.746588

sp77\_800\_ss\_c\_lag\_all | .8533648 .1793566 -0.75 0.451 .5652399 1.288358

sp77\_801\_1\_ss\_c\_lag\_all | 1 (omitted)

sp77\_802\_ss\_c\_lag\_all | .5024899 .233257 -1.48 0.138 .2023008 1.248122

sp77\_803\_ss\_c\_lag\_all | .9187671 .2330123 -0.33 0.738 .558893 1.510366

sp77\_804\_ss\_c\_lag\_all | 1.013407 .0794945 0.17 0.865 .8689867 1.181828

sp77\_805\_ss\_c\_lag\_all | .312494 .0897306 -4.05 0.000 .178002 .5486035

sp77\_807\_1\_ss\_c\_lag\_all | .8495447 .1486345 -0.93 0.351 .6029231 1.197045

sp77\_807\_2\_ss\_c\_lag\_all | 1.969206 .4153684 3.21 0.001 1.302404 2.977397

sp77\_807\_3\_ss\_c\_lag\_all | .9391022 .2478128 -0.24 0.812 .5598807 1.57518

sp77\_807\_ss\_c\_lag\_all | 1.07392 .1584304 0.48 0.629 .804263 1.433988

sp77\_808\_ss\_c\_lag\_all | 1 (omitted)

sp77\_809\_ss\_c\_lag\_all | .895955 .0598613 -1.64 0.100 .7859863 1.02131

sp77\_810\_ss\_c\_lag\_all | .9785062 .185735 -0.11 0.909 .6745171 1.419496

sp77\_900\_1\_ss\_c\_lag\_all | 1 (omitted)

sp77\_900\_2\_ss\_c\_lag\_all | .8718481 .0495029 -2.42 0.016 .780028 .9744768

sp77\_900\_ss\_c\_lag\_all | .978789 .1344619 -0.16 0.876 .7477469 1.28122

sp77\_901\_1\_ss\_c\_lag\_all | 1 (omitted)

sp77\_901\_ss\_c\_lag\_all | 1.202059 .3106038 0.71 0.476 .724404 1.994667

sp77\_902\_ss\_c\_lag\_all | .9721659 .4056672 -0.07 0.946 .4290909 2.202578

sp77\_903\_ss\_c\_lag\_all | 1.450969 .1540785 3.51 0.000 1.178335 1.786682

sp77\_904\_ss\_c\_lag\_all | 1.038676 .0303535 1.30 0.194 .9808555 1.099904

mine\_time | .9870818 .0170747 -0.75 0.452 .9541768 1.021121

onsite\_insp\_hours | 1.001234 .0001993 6.19 0.000 1.000843 1.001625

|

state |

1 | 1.946245 .768366 1.69 0.092 .897735 4.219363

2 | 3.115362 .3767563 9.40 0.000 2.457924 3.948649

3 | .4754348 .2119322 -1.67 0.095 .1984518 1.139008

4 | 2.315401 .9185039 2.12 0.034 1.064046 5.038394

5 | .5669428 .1902239 -1.69 0.091 .2937239 1.094307

6 | .7243367 .0750474 -3.11 0.002 .5912196 .8874261

7 | 1.50798 .5531755 1.12 0.263 .734763 3.094879

8 | 1.28598 .209324 1.55 0.122 .934718 1.769243

9 | 1.37e+10 3.70e+10 8.66 0.000 6.99e+07 2.70e+12

10 | .5242058 .2246279 -1.51 0.132 .2263355 1.21409

11 | 1.395672 .8285903 0.56 0.574 .4359508 4.468167

12 | .9444093 .174104 -0.31 0.756 .6580203 1.355443

13 | 2.059648 .7955524 1.87 0.061 .9660753 4.391118

14 | .8895022 .3135458 -0.33 0.740 .4457609 1.774974

15 | .5652438 .0732564 -4.40 0.000 .4384488 .7287067

17 | 1 (empty)

|

time |

2000 | .9760291 .1451332 -0.16 0.870 .7292747 1.306274

2002 | .6982411 .1120774 -2.24 0.025 .5097718 .9563901

2003 | .7601741 .138908 -1.50 0.133 .5313387 1.087564

2004 | .4651543 .0828139 -4.30 0.000 .3281355 .6593878

2005 | .4942477 .0808303 -4.31 0.000 .358705 .6810075

2006 | .5635272 .0942452 -3.43 0.001 .4060303 .7821161

2007 | .5599111 .0991325 -3.28 0.001 .3957433 .7921814

2008 | .4672848 .0840887 -4.23 0.000 .3284024 .6649008

2009 | .2167575 .0427926 -7.74 0.000 .1472071 .3191681

2010 | .3208451 .0656221 -5.56 0.000 .214882 .4790611

2011 | .42354 .0821702 -4.43 0.000 .2895705 .6194902

2012 | .3627502 .0746481 -4.93 0.000 .2423506 .5429643

2013 | .2475352 .0552446 -6.26 0.000 .1598331 .3833604

2014 | .2029705 .0475609 -6.81 0.000 .1282259 .3212846

2015 | .2636273 .0636875 -5.52 0.000 .1641934 .4232773

|

\_cons | .0000214 2.94e-06 -78.17 0.000 .0000163 .000028

lnhours | 1 (offset)

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

Note: 0 failures and 42 successes completely determined.

(est1 stored)

**. lfit**

Logistic model for MR\_indicator, goodness-of-fit test

number of observations = 5917

number of covariate patterns = 5901

Pearson chi2(5619) = 6238.06

Prob > chi2 = 0.0000

**. linktest**

Iteration 0: log likelihood = -4091.6355

Iteration 1: log likelihood = -2761.6278

Iteration 2: log likelihood = -2726.3889

Iteration 3: log likelihood = -2711.1348

Iteration 4: log likelihood = -2711.0522

Iteration 5: log likelihood = -2710.934

Iteration 6: log likelihood = -2710.932

Iteration 7: log likelihood = -2710.932

Logistic regression Number of obs = 5,917

LR chi2(2) = 2761.41

Prob > chi2 = 0.0000

Log likelihood = -2710.932 Pseudo R2 = 0.3374

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

MR\_indicator | Coef. Std. Err. z P>|z| [95% Conf. Interval]

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

\_hat | 1.068928 .029647 36.06 0.000 1.010821 1.127035

\_hatsq | -.0151767 .0024347 -6.23 0.000 -.0199486 -.0104048

\_cons | .0188503 .0335548 0.56 0.574 -.0469159 .0846166

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

Note: 0 failures and 4 successes completely determined.

**. estat classification**

Logistic model for MR\_indicator

-------- True --------

Classified | D ~D | Total

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

+ | 2475 661 | 3136

- | 653 2128 | 2781

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

Total | 3128 2789 | 5917

Classified + if predicted Pr(D) >= .5

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

Sensitivity Pr( +| D) 79.12%

Specificity Pr( -|~D) 76.30%

Positive predictive value Pr( D| +) 78.92%

Negative predictive value Pr(~D| -) 76.52%

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

False + rate for true ~D Pr( +|~D) 23.70%

False - rate for true D Pr( -| D) 20.88%

False + rate for classified + Pr(~D| +) 21.08%

False - rate for classified - Pr( D| -) 23.48%

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

Correctly classified 77.79%

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

**. summ MR\_indicator spbssv4\_yhat**

Variable | Obs Mean Std. Dev. Min Max

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

MR\_indicator | 6,253 .5525348 .4972722 0 1

spbssv4\_yhat | 5,917 .5286463 .3040461 .0003791 1