. // Model SP.B.PP.4

**. eststo: logit MR\_indicator `subpart\_pp\_lag\_all\_vars' `covariates' ib(freq).state ib(freq).time if sample\_pp == 1, vce(cl mineid) offset(lnhours) iter(50) or**

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

sp72\_610\_pp\_c\_lag\_all dropped and 9 obs not used

note: sp75\_1401\_1\_pp\_c\_lag\_all != 0 predicts success perfectly

sp75\_1401\_1\_pp\_c\_lag\_all dropped and 27 obs not used

note: sp75\_800\_2\_pp\_c\_lag\_all != 0 predicts failure perfectly

sp75\_800\_2\_pp\_c\_lag\_all dropped and 3 obs not used

note: sp77\_1432\_pp\_c\_lag\_all != 0 predicts success perfectly

sp77\_1432\_pp\_c\_lag\_all dropped and 4 obs not used

note: sp77\_502\_1\_pp\_c\_lag\_all != 0 predicts success perfectly

sp77\_502\_1\_pp\_c\_lag\_all dropped and 2 obs not used

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

Iteration 0: log pseudolikelihood = -3409.092

Iteration 1: log pseudolikelihood = -3038.3369

Iteration 2: log pseudolikelihood = -3014.3739

Iteration 3: log pseudolikelihood = -3010.3345

Iteration 4: log pseudolikelihood = -3010.1097

Iteration 5: log pseudolikelihood = -3010.1027

Iteration 6: log pseudolikelihood = -3010.1027

Logistic regression Number of obs = 7,012

Wald chi2(320) = .

Log pseudolikelihood = -3010.1027 Prob > chi2 = .

(Std. Err. adjusted for 401 clusters in mineid)

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| Robust

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

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

sp47\_41\_pp\_c\_lag\_all | 1.003358 .0014095 2.39 0.017 1.000599 1.006124

sp47\_42\_pp\_c\_lag\_all | .9915098 .0039814 -2.12 0.034 .9837369 .999344

sp47\_44\_pp\_c\_lag\_all | 1.000155 .0020543 0.08 0.940 .9961365 1.004189

sp48\_11\_pp\_c\_lag\_all | 1.001266 .0018547 0.68 0.495 .9976373 1.004907

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

sp48\_25\_pp\_c\_lag\_all | .9955252 .0025091 -1.78 0.075 .9906196 1.000455

sp48\_26\_pp\_c\_lag\_all | 1.004862 .0026248 1.86 0.063 .9997303 1.010019

sp48\_27\_pp\_c\_lag\_all | 1.001605 .0021664 0.74 0.458 .9973683 1.00586

sp48\_28\_pp\_c\_lag\_all | .9940209 .0027348 -2.18 0.029 .9886752 .9993955

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

sp48\_5\_pp\_c\_lag\_all | 1.00023 .0033368 0.07 0.945 .9937117 1.006792

sp48\_6\_pp\_c\_lag\_all | 1.000328 .0011993 0.27 0.784 .9979802 1.002681

sp48\_7\_pp\_c\_lag\_all | 1.000984 .0011916 0.83 0.409 .9986509 1.003322

sp48\_8\_pp\_c\_lag\_all | .9943122 .0031192 -1.82 0.069 .9882173 1.000445

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

sp72\_503\_pp\_c\_lag\_all | .9952741 .0017595 -2.68 0.007 .9918315 .9987287

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

sp72\_620\_pp\_c\_lag\_all | .9944235 .0109528 -0.51 0.612 .9731864 1.016124

sp72\_630\_pp\_c\_lag\_all | .9998796 .000187 -0.64 0.520 .9995131 1.000246

sp75\_100\_pp\_c\_lag\_all | 1.00436 .0056637 0.77 0.440 .9933207 1.015523

sp75\_1001\_1\_pp\_c\_lag\_all | 1.017797 .0118571 1.51 0.130 .9948206 1.041304

sp75\_1001\_pp\_c\_lag\_all | 1.035196 .0414606 0.86 0.388 .9570418 1.119731

sp75\_1003\_1\_pp\_c\_lag\_all | .9967168 .0071062 -0.46 0.645 .9828857 1.010742

sp75\_1100\_2\_pp\_c\_lag\_all | 1.00035 .0001831 1.91 0.056 .9999916 1.000709

sp75\_1101\_20\_pp\_c\_lag\_all | .9926199 .0056041 -1.31 0.190 .9816966 1.003665

sp75\_1102\_pp\_c\_lag\_all | 1.000955 .001086 0.88 0.379 .9988286 1.003086

sp75\_1103\_4\_pp\_c\_lag\_all | .9997461 .0002759 -0.92 0.358 .9992054 1.000287

sp75\_1104\_pp\_c\_lag\_all | .9950237 .0013616 -3.65 0.000 .9923585 .997696

sp75\_1106\_2\_pp\_c\_lag\_all | .9982379 .0011215 -1.57 0.116 .9960424 1.000438

sp75\_1106\_3\_pp\_c\_lag\_all | .999536 .0003723 -1.25 0.213 .9988065 1.000266

sp75\_1106\_4\_pp\_c\_lag\_all | .9995428 .0028559 -0.16 0.873 .9939609 1.005156

sp75\_1106\_5\_pp\_c\_lag\_all | .9983883 .001013 -1.59 0.112 .9964048 1.000376

sp75\_1106\_6\_pp\_c\_lag\_all | 1.012128 .0187194 0.65 0.515 .9760954 1.04949

sp75\_1106\_pp\_c\_lag\_all | 1.005676 .0032716 1.74 0.082 .9992844 1.012109

sp75\_1107\_14\_pp\_c\_lag\_all | 1.027147 .0136837 2.01 0.044 1.000675 1.05432

sp75\_1400\_1\_pp\_c\_lag\_all | .9944065 .0058726 -0.95 0.342 .9829628 1.005983

sp75\_1400\_2\_pp\_c\_lag\_all | 1.002008 .0086888 0.23 0.817 .985122 1.019183

sp75\_1400\_3\_pp\_c\_lag\_all | 1.000065 .0018876 0.03 0.973 .9963717 1.003771

sp75\_1400\_4\_pp\_c\_lag\_all | .9897635 .0047801 -2.13 0.033 .9804389 .9991768

sp75\_1400\_pp\_c\_lag\_all | 1.001052 .0018387 0.57 0.567 .9974547 1.004662

sp75\_1401\_1\_pp\_c\_lag\_all | 1 (omitted)

sp75\_1401\_pp\_c\_lag\_all | .9997402 .0145918 -0.02 0.986 .9715461 1.028753

sp75\_1403\_10\_pp\_c\_lag\_all | 1.001983 .0005049 3.93 0.000 1.000994 1.002973

sp75\_1403\_11\_pp\_c\_lag\_all | 1.009204 .0136636 0.68 0.499 .9827757 1.036342

sp75\_1403\_3\_pp\_c\_lag\_all | .940362 .0337254 -1.71 0.086 .8765312 1.008841

sp75\_1403\_4\_pp\_c\_lag\_all | 1.073354 .0450801 1.69 0.092 .9885371 1.165447

sp75\_1403\_5\_pp\_c\_lag\_all | .9999154 .0003294 -0.26 0.797 .9992701 1.000561

sp75\_1403\_6\_pp\_c\_lag\_all | .9994421 .0001933 -2.89 0.004 .9990633 .9998211

sp75\_1403\_7\_pp\_c\_lag\_all | .9987019 .0013833 -0.94 0.348 .9959943 1.001417

sp75\_1403\_8\_pp\_c\_lag\_all | .9996946 .0004127 -0.74 0.459 .9988859 1.000504

sp75\_1403\_9\_pp\_c\_lag\_all | .9983277 .0024651 -0.68 0.498 .9935079 1.003171

sp75\_1404\_1\_pp\_c\_lag\_all | .963473 .0114844 -3.12 0.002 .9412248 .9862471

sp75\_1404\_pp\_c\_lag\_all | 1.000278 .0051509 0.05 0.957 .9902336 1.010425

sp75\_1405\_1\_pp\_c\_lag\_all | 1.01053 .067526 0.16 0.875 .8864817 1.151936

sp75\_1405\_pp\_c\_lag\_all | 1.000321 .0006197 0.52 0.604 .9991071 1.001536

sp75\_1431\_pp\_c\_lag\_all | .8735832 .0590305 -2.00 0.045 .7652197 .9972921

sp75\_1432\_pp\_c\_lag\_all | .9934146 .0047156 -1.39 0.164 .984215 1.0027

sp75\_1433\_pp\_c\_lag\_all | 1.001266 .0028122 0.45 0.652 .9957693 1.006793

sp75\_1434\_pp\_c\_lag\_all | 1.002018 .0025177 0.80 0.422 .9970952 1.006965

sp75\_1435\_pp\_c\_lag\_all | .9872105 .0139947 -0.91 0.364 .9601589 1.015024

sp75\_1437\_pp\_c\_lag\_all | .989904 .0076993 -1.30 0.192 .9749282 1.00511

sp75\_150\_pp\_c\_lag\_all | 1.008216 .0042385 1.95 0.052 .9999427 1.016557

sp75\_151\_pp\_c\_lag\_all | 1.000271 .0063679 0.04 0.966 .9878679 1.01283

sp75\_153\_pp\_c\_lag\_all | 1.007249 .0062586 1.16 0.245 .9950569 1.019591

sp75\_156\_pp\_c\_lag\_all | .9878541 .0096825 -1.25 0.212 .9690579 1.007015

sp75\_160\_pp\_c\_lag\_all | .989686 .0102403 -1.00 0.316 .9698177 1.009961

sp75\_1600\_2\_pp\_c\_lag\_all | .9991594 .0004916 -1.71 0.087 .9981964 1.000123

sp75\_1712\_10\_pp\_c\_lag\_all | 1.001206 .0021654 0.56 0.577 .9969713 1.00546

sp75\_1712\_6\_pp\_c\_lag\_all | 1.001736 .0015257 1.14 0.255 .9987499 1.004731

sp75\_1720\_pp\_c\_lag\_all | .998558 .0008534 -1.69 0.091 .9968868 1.000232

sp75\_1721\_pp\_c\_lag\_all | 1 (omitted)

sp75\_1725\_pp\_c\_lag\_all | 1.000151 .0000759 1.99 0.047 1.000002 1.0003

sp75\_1726\_pp\_c\_lag\_all | 1.008617 .0020508 4.22 0.000 1.004606 1.012645

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

sp75\_1728\_pp\_c\_lag\_all | 1.002626 .0084592 0.31 0.756 .9861824 1.019343

sp75\_1729\_pp\_c\_lag\_all | .9945587 .0042084 -1.29 0.197 .9863444 1.002841

sp75\_1730\_pp\_c\_lag\_all | 1.002709 .0040657 0.67 0.505 .9947722 1.01071

sp75\_1731\_pp\_c\_lag\_all | 1.000052 .0000533 0.97 0.331 .9999473 1.000156

sp75\_1903\_pp\_c\_lag\_all | 1.002432 .0011591 2.10 0.036 1.000162 1.004706

sp75\_1909\_pp\_c\_lag\_all | .9997917 .0001408 -1.48 0.139 .9995158 1.000068

sp75\_1910\_pp\_c\_lag\_all | 1.000807 .000243 3.32 0.001 1.000331 1.001283

sp75\_1911\_pp\_c\_lag\_all | 1.000078 .0003346 0.23 0.816 .9994222 1.000734

sp75\_1912\_pp\_c\_lag\_all | 1.001883 .0028422 0.66 0.507 .9963274 1.007469

sp75\_1913\_pp\_c\_lag\_all | 1.002225 .0033851 0.66 0.511 .9956121 1.008882

sp75\_1914\_pp\_c\_lag\_all | .9996242 .000157 -2.39 0.017 .9993165 .999932

sp75\_1915\_pp\_c\_lag\_all | .9977213 .003001 -0.76 0.448 .9918567 1.003621

sp75\_202\_pp\_c\_lag\_all | .99998 .0000376 -0.53 0.595 .9999062 1.000054

sp75\_208\_pp\_c\_lag\_all | .9997866 .0004087 -0.52 0.602 .9989859 1.000588

sp75\_211\_pp\_c\_lag\_all | 1.000358 .0003185 1.12 0.261 .9997336 1.000982

sp75\_212\_pp\_c\_lag\_all | .9983533 .0010316 -1.59 0.111 .9963334 1.000377

sp75\_214\_pp\_c\_lag\_all | .9986256 .0007921 -1.73 0.083 .9970742 1.000179

sp75\_312\_pp\_c\_lag\_all | .999622 .0006386 -0.59 0.554 .9983711 1.000874

sp75\_320\_pp\_c\_lag\_all | .9994927 .0004202 -1.21 0.227 .9986694 1.000317

sp75\_324\_pp\_c\_lag\_all | .9982651 .0016513 -1.05 0.294 .9950338 1.001507

sp75\_337\_pp\_c\_lag\_all | 1.001555 .0008335 1.87 0.062 .9999232 1.00319

sp75\_340\_pp\_c\_lag\_all | 1.000723 .0002924 2.47 0.013 1.00015 1.001296

sp75\_341\_pp\_c\_lag\_all | 1.031015 .024974 1.26 0.207 .9832108 1.081144

sp75\_342\_pp\_c\_lag\_all | .9997666 .0001361 -1.72 0.086 .9994999 1.000033

sp75\_344\_pp\_c\_lag\_all | .9989744 .0037763 -0.27 0.786 .9916004 1.006403

sp75\_352\_pp\_c\_lag\_all | 1.001253 .001673 0.75 0.454 .9979794 1.004537

sp75\_382\_pp\_c\_lag\_all | .9974716 .0015583 -1.62 0.105 .994422 1.000531

sp75\_503\_pp\_c\_lag\_all | 1.000083 .0000467 1.77 0.076 .9999912 1.000174

sp75\_504\_pp\_c\_lag\_all | .9986317 .0018399 -0.74 0.457 .9950321 1.002244

sp75\_505\_pp\_c\_lag\_all | 1.005905 .0035274 1.68 0.093 .9990148 1.012842

sp75\_506\_1\_pp\_c\_lag\_all | 1.001384 .0035686 0.39 0.698 .9944137 1.008403

sp75\_506\_pp\_c\_lag\_all | .9986058 .001892 -0.74 0.461 .9949045 1.002321

sp75\_507\_pp\_c\_lag\_all | 1.000143 .0010256 0.14 0.889 .9981345 1.002155

sp75\_511\_1\_pp\_c\_lag\_all | 1.056746 .0191681 3.04 0.002 1.019838 1.094991

sp75\_511\_pp\_c\_lag\_all | 1.000595 .0012556 0.47 0.636 .9981367 1.003058

sp75\_512\_1\_pp\_c\_lag\_all | 1.007449 .0103212 0.72 0.469 .9874212 1.027882

sp75\_512\_2\_pp\_c\_lag\_all | 1.000283 .0003392 0.84 0.403 .9996188 1.000949

sp75\_512\_pp\_c\_lag\_all | 1.000058 .0001011 0.57 0.566 .9998599 1.000256

sp75\_513\_1\_pp\_c\_lag\_all | 1.00071 .0030251 0.23 0.814 .994798 1.006656

sp75\_513\_pp\_c\_lag\_all | .9959978 .0014676 -2.72 0.006 .9931254 .9988785

sp75\_514\_pp\_c\_lag\_all | 1.000423 .0003676 1.15 0.250 .9997024 1.001144

sp75\_515\_pp\_c\_lag\_all | .9991749 .0002762 -2.99 0.003 .9986337 .9997163

sp75\_516\_1\_pp\_c\_lag\_all | 1.001579 .0069866 0.23 0.821 .9879787 1.015367

sp75\_516\_2\_pp\_c\_lag\_all | 1.00017 .0007446 0.23 0.819 .9987121 1.001631

sp75\_516\_pp\_c\_lag\_all | .999513 .0003775 -1.29 0.197 .9987733 1.000253

sp75\_517\_1\_pp\_c\_lag\_all | 1.00091 .0055656 0.16 0.870 .9900606 1.011878

sp75\_517\_pp\_c\_lag\_all | .9999522 .0000543 -0.88 0.378 .9998457 1.000059

sp75\_518\_1\_pp\_c\_lag\_all | 1.000122 .0006252 0.19 0.846 .9988972 1.001348

sp75\_518\_pp\_c\_lag\_all | .9995451 .0003735 -1.22 0.223 .9988134 1.000277

sp75\_519\_pp\_c\_lag\_all | .9610053 .0469579 -0.81 0.416 .8732392 1.057592

sp75\_520\_pp\_c\_lag\_all | 1.000745 .0008505 0.88 0.381 .9990791 1.002413

sp75\_523\_1\_pp\_c\_lag\_all | .998795 .0008457 -1.42 0.154 .9971388 1.000454

sp75\_523\_2\_pp\_c\_lag\_all | .999532 .0006769 -0.69 0.489 .9982062 1.00086

sp75\_523\_pp\_c\_lag\_all | .9984274 .0007865 -2.00 0.046 .9968871 .9999701

sp75\_600\_1\_pp\_c\_lag\_all | .9809577 .0083902 -2.25 0.025 .9646502 .9975409

sp75\_600\_pp\_c\_lag\_all | .9864394 .0069284 -1.94 0.052 .972953 1.000113

sp75\_601\_1\_pp\_c\_lag\_all | .9997233 .0003327 -0.83 0.406 .9990714 1.000376

sp75\_601\_2\_pp\_c\_lag\_all | 1.000734 .0057124 0.13 0.898 .9895998 1.011993

sp75\_601\_3\_pp\_c\_lag\_all | .9923608 .0079725 -0.95 0.340 .9768573 1.00811

sp75\_601\_pp\_c\_lag\_all | 1.000216 .0004253 0.51 0.611 .9993831 1.00105

sp75\_602\_pp\_c\_lag\_all | 1.000099 .0010945 0.09 0.928 .9979567 1.002247

sp75\_603\_pp\_c\_lag\_all | .9996767 .0012757 -0.25 0.800 .9971795 1.00218

sp75\_604\_pp\_c\_lag\_all | 1.00006 .000106 0.57 0.571 .9998523 1.000268

sp75\_605\_pp\_c\_lag\_all | .9996263 .0004811 -0.78 0.437 .9986838 1.00057

sp75\_606\_pp\_c\_lag\_all | 1.000329 .0001938 1.70 0.089 .9999494 1.000709

sp75\_607\_pp\_c\_lag\_all | .9998647 .0013515 -0.10 0.920 .9972192 1.002517

sp75\_700\_1\_pp\_c\_lag\_all | .9954028 .004105 -1.12 0.264 .9873896 1.003481

sp75\_700\_pp\_c\_lag\_all | 1.000043 .0016287 0.03 0.979 .9968561 1.00324

sp75\_701\_1\_pp\_c\_lag\_all | 1.003793 .0016043 2.37 0.018 1.000653 1.006942

sp75\_701\_2\_pp\_c\_lag\_all | 1.001215 .0017833 0.68 0.495 .9977258 1.004716

sp75\_701\_3\_pp\_c\_lag\_all | .995606 .0023351 -1.88 0.060 .9910397 1.000193

sp75\_701\_4\_pp\_c\_lag\_all | 1.008125 .0039966 2.04 0.041 1.000322 1.015989

sp75\_701\_pp\_c\_lag\_all | 1.000401 .0002973 1.35 0.178 .999818 1.000983

sp75\_702\_1\_pp\_c\_lag\_all | .9552773 .0126227 -3.46 0.001 .9308549 .9803404

sp75\_702\_pp\_c\_lag\_all | 1.023876 .0096949 2.49 0.013 1.00505 1.043055

sp75\_703\_1\_pp\_c\_lag\_all | .979795 .0079313 -2.52 0.012 .9643726 .995464

sp75\_703\_2\_pp\_c\_lag\_all | 1.033597 .0213098 1.60 0.109 .9926631 1.076219

sp75\_703\_3\_pp\_c\_lag\_all | .9997542 .0023135 -0.11 0.915 .9952301 1.004299

sp75\_703\_4\_pp\_c\_lag\_all | 1.018735 .0109602 1.73 0.084 .9974782 1.040444

sp75\_703\_pp\_c\_lag\_all | 1.000999 .0007153 1.40 0.162 .999598 1.002402

sp75\_704\_pp\_c\_lag\_all | .9988536 .0043819 -0.26 0.794 .9903021 1.007479

sp75\_705\_1\_pp\_c\_lag\_all | 1.001454 .0032523 0.45 0.655 .9950994 1.007848

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

sp75\_705\_8\_pp\_c\_lag\_all | 1.004191 .0191691 0.22 0.827 .967314 1.042473

sp75\_705\_pp\_c\_lag\_all | 1.000352 .0083178 0.04 0.966 .9841814 1.016788

sp75\_706\_pp\_c\_lag\_all | .9981296 .0020208 -0.92 0.355 .9941768 1.002098

sp75\_800\_2\_pp\_c\_lag\_all | 1 (omitted)

sp75\_800\_3\_pp\_c\_lag\_all | .9998262 .0024164 -0.07 0.943 .9951013 1.004574

sp75\_800\_4\_pp\_c\_lag\_all | 1.001305 .0022614 0.58 0.564 .9968828 1.005747

sp75\_800\_pp\_c\_lag\_all | .9974537 .0018039 -1.41 0.159 .9939244 1.000996

sp75\_801\_pp\_c\_lag\_all | 1.005454 .0060985 0.90 0.370 .993572 1.017478

sp75\_802\_pp\_c\_lag\_all | .9967266 .004182 -0.78 0.435 .9885637 1.004957

sp75\_803\_2\_pp\_c\_lag\_all | .9783234 .0027898 -7.69 0.000 .9728708 .9838066

sp75\_803\_pp\_c\_lag\_all | 1.000166 .0019518 0.08 0.932 .9963477 1.003999

sp75\_812\_pp\_c\_lag\_all | 1.003003 .0037326 0.81 0.420 .9957137 1.010345

sp75\_814\_pp\_c\_lag\_all | 1.002862 .0049067 0.58 0.559 .9932907 1.012525

sp75\_815\_pp\_c\_lag\_all | .9935788 .0030814 -2.08 0.038 .9875577 .9996367

sp75\_816\_pp\_c\_lag\_all | .9991547 .0006493 -1.30 0.193 .997883 1.000428

sp75\_818\_pp\_c\_lag\_all | 1.038078 .0137091 2.83 0.005 1.011554 1.065298

sp75\_820\_pp\_c\_lag\_all | .9944244 .0039614 -1.40 0.160 .9866905 1.002219

sp75\_821\_pp\_c\_lag\_all | 1.002034 .0021023 0.97 0.333 .997922 1.006163

sp75\_825\_pp\_c\_lag\_all | .995955 .0027288 -1.48 0.139 .990621 1.001318

sp75\_827\_pp\_c\_lag\_all | 1.004824 .0044611 1.08 0.278 .9961183 1.013606

sp75\_831\_pp\_c\_lag\_all | 1.00702 .0054373 1.30 0.195 .9964195 1.017734

sp75\_832\_pp\_c\_lag\_all | 1.045179 .0156602 2.95 0.003 1.014932 1.076328

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

sp75\_900\_2\_pp\_c\_lag\_all | .978659 .0151272 -1.40 0.163 .9494549 1.008761

sp75\_900\_3\_pp\_c\_lag\_all | 1.001767 .0016226 1.09 0.276 .9985917 1.004952

sp75\_900\_4\_pp\_c\_lag\_all | 1.000456 .0012148 0.38 0.707 .9980779 1.00284

sp75\_900\_pp\_c\_lag\_all | 1.000257 .0005272 0.49 0.625 .9992246 1.001291

sp75\_901\_pp\_c\_lag\_all | .9984918 .002374 -0.63 0.526 .9938496 1.003156

sp75\_902\_1\_pp\_c\_lag\_all | 1.001665 .0063495 0.26 0.793 .9892971 1.014187

sp75\_902\_2\_pp\_c\_lag\_all | 1.006703 .0020927 3.21 0.001 1.00261 1.010813

sp75\_902\_4\_pp\_c\_lag\_all | 1.000392 .0009256 0.42 0.672 .9985797 1.002208

sp75\_902\_pp\_c\_lag\_all | .9996001 .0004219 -0.95 0.343 .9987735 1.000427

sp75\_903\_pp\_c\_lag\_all | 1.001436 .0008296 1.73 0.083 .9998118 1.003064

sp75\_904\_pp\_c\_lag\_all | 1.000105 .00019 0.55 0.580 .9997328 1.000478

sp75\_905\_pp\_c\_lag\_all | .9944377 .0108558 -0.51 0.609 .9733866 1.015944

sp75\_907\_pp\_c\_lag\_all | 1.000972 .001527 0.64 0.524 .9979835 1.003969

sp77\_103\_pp\_c\_lag\_all | .9958717 .00315 -1.31 0.191 .989717 1.002065

sp77\_104\_pp\_c\_lag\_all | .9777149 .0075673 -2.91 0.004 .9629952 .9926596

sp77\_1103\_pp\_c\_lag\_all | 1.00032 .0006228 0.51 0.607 .9991003 1.001542

sp77\_1104\_pp\_c\_lag\_all | .9998424 .0001935 -0.81 0.415 .9994633 1.000222

sp77\_1106\_pp\_c\_lag\_all | .9789764 .008229 -2.53 0.011 .96298 .9952384

sp77\_1111\_pp\_c\_lag\_all | .9992058 .0121351 -0.07 0.948 .9757022 1.023276

sp77\_1112\_pp\_c\_lag\_all | 1.005018 .0025679 1.96 0.050 .9999976 1.010064

sp77\_1403\_pp\_c\_lag\_all | .9991873 .0022524 -0.36 0.718 .9947824 1.003612

sp77\_1432\_pp\_c\_lag\_all | 1 (omitted)

sp77\_1433\_pp\_c\_lag\_all | 1.000184 .0111361 0.02 0.987 .9785945 1.022251

sp77\_1434\_pp\_c\_lag\_all | .9992013 .0051358 -0.16 0.876 .9891859 1.009318

sp77\_1437\_pp\_c\_lag\_all | .9861917 .0055719 -2.46 0.014 .9753311 .9971732

sp77\_1438\_pp\_c\_lag\_all | .9766758 .0494398 -0.47 0.641 .8844274 1.078546

sp77\_1605\_pp\_c\_lag\_all | .9999841 .000231 -0.07 0.945 .9995315 1.000437

sp77\_1606\_pp\_c\_lag\_all | .9997045 .0002936 -1.01 0.314 .9991293 1.00028

sp77\_1710\_pp\_c\_lag\_all | .9989379 .0009246 -1.15 0.251 .9971274 1.000752

sp77\_1802\_pp\_c\_lag\_all | 1.025311 .0469014 0.55 0.585 .9373859 1.121482

sp77\_1906\_pp\_c\_lag\_all | 1.006035 .0063992 0.95 0.344 .9935711 1.018656

sp77\_1915\_pp\_c\_lag\_all | .9953456 .0059366 -0.78 0.434 .9837777 1.007049

sp77\_1916\_pp\_c\_lag\_all | 1.01339 .0083426 1.62 0.106 .9971703 1.029874

sp77\_200\_pp\_c\_lag\_all | 1.000384 .0007816 0.49 0.623 .998853 1.001917

sp77\_202\_pp\_c\_lag\_all | .9992316 .0005705 -1.35 0.178 .9981141 1.00035

sp77\_203\_pp\_c\_lag\_all | .997692 .0049832 -0.46 0.644 .9879727 1.007507

sp77\_204\_pp\_c\_lag\_all | .9998801 .0011213 -0.11 0.915 .9976848 1.00208

sp77\_205\_pp\_c\_lag\_all | 1.000312 .0002942 1.06 0.289 .9997357 1.000889

sp77\_206\_pp\_c\_lag\_all | 1.004868 .0017638 2.77 0.006 1.001417 1.008331

sp77\_207\_pp\_c\_lag\_all | .9997612 .0010808 -0.22 0.825 .9976451 1.001882

sp77\_208\_pp\_c\_lag\_all | 1.000161 .0003706 0.43 0.665 .9994345 1.000887

sp77\_210\_pp\_c\_lag\_all | 1.004675 .0021738 2.16 0.031 1.000423 1.008944

sp77\_216\_pp\_c\_lag\_all | 1.00133 .0013648 0.98 0.329 .9986586 1.004009

sp77\_305\_pp\_c\_lag\_all | .9906122 .0144237 -0.65 0.517 .9627418 1.019289

sp77\_309\_pp\_c\_lag\_all | .965352 .013052 -2.61 0.009 .9401064 .9912754

sp77\_314\_pp\_c\_lag\_all | .9751958 .018024 -1.36 0.174 .9405017 1.01117

sp77\_315\_pp\_c\_lag\_all | .9727125 .0184217 -1.46 0.144 .9372685 1.009497

sp77\_400\_pp\_c\_lag\_all | .9995612 .000367 -1.20 0.232 .9988422 1.000281

sp77\_401\_pp\_c\_lag\_all | 1.003028 .0021723 1.40 0.163 .998779 1.007294

sp77\_402\_pp\_c\_lag\_all | .9991967 .001405 -0.57 0.568 .9964468 1.001954

sp77\_403\_1\_pp\_c\_lag\_all | 1.001749 .0027933 0.63 0.531 .9962893 1.007239

sp77\_403\_2\_pp\_c\_lag\_all | .9866957 .0295199 -0.45 0.654 .9305013 1.046284

sp77\_403\_pp\_c\_lag\_all | .9982151 .007822 -0.23 0.820 .9830012 1.013664

sp77\_404\_pp\_c\_lag\_all | .9998437 .0001923 -0.81 0.416 .9994669 1.000221

sp77\_405\_pp\_c\_lag\_all | .9980465 .002393 -0.82 0.415 .9933674 1.002748

sp77\_408\_pp\_c\_lag\_all | 1.001028 .0041432 0.25 0.804 .9929407 1.009182

sp77\_409\_pp\_c\_lag\_all | .9880107 .0153418 -0.78 0.437 .9583943 1.018542

sp77\_410\_pp\_c\_lag\_all | 1.001125 .0004852 2.32 0.020 1.000175 1.002077

sp77\_411\_pp\_c\_lag\_all | .9864241 .0153418 -0.88 0.379 .9568085 1.016956

sp77\_412\_pp\_c\_lag\_all | 1.002615 .0039086 0.67 0.503 .9949839 1.010305

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

sp77\_500\_pp\_c\_lag\_all | .9992785 .0032868 -0.22 0.826 .9928571 1.005741

sp77\_501\_pp\_c\_lag\_all | 1.001001 .0029094 0.34 0.731 .9953147 1.00672

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

sp77\_502\_2\_pp\_c\_lag\_all | .9972872 .0015851 -1.71 0.087 .9941853 1.000399

sp77\_502\_pp\_c\_lag\_all | 1.000248 .0002738 0.91 0.365 .9997117 1.000785

sp77\_503\_1\_pp\_c\_lag\_all | .9935464 .006117 -1.05 0.293 .9816294 1.005608

sp77\_503\_pp\_c\_lag\_all | .999798 .003157 -0.06 0.949 .9936296 1.006005

sp77\_504\_pp\_c\_lag\_all | 1.000055 .0012458 0.04 0.965 .9976166 1.0025

sp77\_505\_pp\_c\_lag\_all | .9996077 .0005639 -0.70 0.487 .9985031 1.000714

sp77\_506\_1\_pp\_c\_lag\_all | 1.001057 .0010011 1.06 0.291 .9990967 1.003021

sp77\_506\_pp\_c\_lag\_all | 1.000231 .0006719 0.34 0.731 .9989145 1.001548

sp77\_507\_pp\_c\_lag\_all | 1.001559 .0036956 0.42 0.673 .9943416 1.008828

sp77\_508\_1\_pp\_c\_lag\_all | 1.002278 .005363 0.43 0.671 .9918214 1.012844

sp77\_508\_pp\_c\_lag\_all | 1.001534 .002983 0.51 0.607 .9957049 1.007398

sp77\_509\_pp\_c\_lag\_all | .9983645 .0012389 -1.32 0.187 .9959393 1.000796

sp77\_510\_pp\_c\_lag\_all | .9725438 .0179432 -1.51 0.131 .9380039 1.008355

sp77\_511\_pp\_c\_lag\_all | .99566 .0049094 -0.88 0.378 .9860841 1.005329

sp77\_512\_pp\_c\_lag\_all | .9992726 .0006301 -1.15 0.249 .9980384 1.000508

sp77\_513\_pp\_c\_lag\_all | 1.000903 .0008117 1.11 0.266 .9993131 1.002495

sp77\_514\_pp\_c\_lag\_all | .9896775 .008762 -1.17 0.241 .9726523 1.007001

sp77\_515\_pp\_c\_lag\_all | 1 (omitted)

sp77\_516\_pp\_c\_lag\_all | 1.000297 .0003525 0.84 0.399 .9996065 1.000988

sp77\_600\_pp\_c\_lag\_all | 1.005205 .004014 1.30 0.194 .9973688 1.013103

sp77\_601\_pp\_c\_lag\_all | 1.000659 .0066652 0.10 0.921 .9876804 1.013808

sp77\_602\_pp\_c\_lag\_all | 1.003176 .0082524 0.39 0.700 .9871312 1.019481

sp77\_603\_pp\_c\_lag\_all | 1.00651 .0036429 1.79 0.073 .9993955 1.013675

sp77\_604\_pp\_c\_lag\_all | 1.000331 .0041021 0.08 0.936 .9923238 1.008404

sp77\_605\_pp\_c\_lag\_all | .9959749 .0117227 -0.34 0.732 .9732618 1.019218

sp77\_606\_1\_pp\_c\_lag\_all | .9761195 .0192183 -1.23 0.220 .9391699 1.014523

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

sp77\_700\_1\_pp\_c\_lag\_all | .9964927 .0117681 -0.30 0.766 .9736926 1.019827

sp77\_700\_pp\_c\_lag\_all | 1.001347 .0028679 0.47 0.638 .9957421 1.006984

sp77\_701\_1\_pp\_c\_lag\_all | 1.001371 .0035527 0.39 0.699 .9944316 1.008358

sp77\_701\_2\_pp\_c\_lag\_all | .9978474 .0028623 -0.75 0.453 .9922531 1.003473

sp77\_701\_pp\_c\_lag\_all | .9997784 .0008201 -0.27 0.787 .9981724 1.001387

sp75\_804\_pp\_c\_lag\_all | .9977856 .0018129 -1.22 0.222 .9942387 1.001345

sp75\_805\_pp\_c\_lag\_all | 1.002743 .0043166 0.64 0.525 .9943183 1.011239

sp75\_806\_pp\_c\_lag\_all | 1.010702 .0226544 0.47 0.635 .9672611 1.056093

sp75\_807\_pp\_c\_lag\_all | .9999924 .000227 -0.03 0.973 .9995476 1.000437

sp75\_808\_pp\_c\_lag\_all | 1.003541 .0020364 1.74 0.082 .9995577 1.00754

sp75\_809\_pp\_c\_lag\_all | 1.001381 .0010107 1.37 0.172 .9994018 1.003364

sp75\_810\_pp\_c\_lag\_all | 1.000669 .0008236 0.81 0.416 .9990562 1.002284

sp75\_811\_pp\_c\_lag\_all | 1.000786 .0010692 0.74 0.462 .998693 1.002884

sp77\_703\_pp\_c\_lag\_all | 1.00043 .0265602 0.02 0.987 .9497046 1.053866

sp77\_704\_1\_pp\_c\_lag\_all | 1.001151 .0030677 0.38 0.707 .9951561 1.007181

sp77\_704\_8\_pp\_c\_lag\_all | .9969201 .0056584 -0.54 0.587 .9858912 1.008072

sp77\_704\_9\_pp\_c\_lag\_all | .981286 .0078048 -2.38 0.018 .9661075 .9967031

sp77\_704\_pp\_c\_lag\_all | 1.004153 .0042187 0.99 0.324 .9959185 1.012456

sp77\_705\_pp\_c\_lag\_all | 1.001538 .0020293 0.76 0.448 .9975688 1.005524

sp77\_800\_1\_pp\_c\_lag\_all | 1.010798 .0047834 2.27 0.023 1.001466 1.020217

sp77\_800\_2\_pp\_c\_lag\_all | .9973388 .003783 -0.70 0.482 .9899518 1.004781

sp77\_800\_pp\_c\_lag\_all | .9944627 .0044583 -1.24 0.216 .9857629 1.003239

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

sp77\_802\_pp\_c\_lag\_all | .9845093 .0126975 -1.21 0.226 .9599345 1.009713

sp77\_803\_pp\_c\_lag\_all | 1.005243 .0046896 1.12 0.262 .9960934 1.014476

sp77\_804\_pp\_c\_lag\_all | 1 (omitted)

sp77\_805\_pp\_c\_lag\_all | .9786491 .0231833 -0.91 0.362 .9342493 1.025159

sp77\_807\_1\_pp\_c\_lag\_all | .9982982 .0062952 -0.27 0.787 .9860357 1.010713

sp77\_807\_2\_pp\_c\_lag\_all | 1.003672 .0098516 0.37 0.709 .9845474 1.023167

sp77\_807\_3\_pp\_c\_lag\_all | 1.008245 .0040571 2.04 0.041 1.000324 1.016228

sp77\_807\_pp\_c\_lag\_all | 1.000147 .0040885 0.04 0.971 .9921655 1.008192

sp77\_808\_pp\_c\_lag\_all | 1.009004 .0063413 1.43 0.154 .9966511 1.021509

sp77\_809\_pp\_c\_lag\_all | .9953742 .0017638 -2.62 0.009 .9919233 .9988372

sp77\_810\_pp\_c\_lag\_all | 1.004345 .0037886 1.15 0.250 .9969472 1.011798

sp77\_900\_1\_pp\_c\_lag\_all | 1.003035 .0052287 0.58 0.561 .9928389 1.013335

sp77\_900\_2\_pp\_c\_lag\_all | 1.000243 .0031854 0.08 0.939 .9940193 1.006506

sp77\_900\_pp\_c\_lag\_all | .9988905 .0042934 -0.26 0.796 .990511 1.007341

sp77\_901\_1\_pp\_c\_lag\_all | .9569342 .0098136 -4.29 0.000 .9378918 .9763631

sp77\_901\_pp\_c\_lag\_all | 1.004815 .0061132 0.79 0.430 .9929044 1.016869

sp77\_902\_pp\_c\_lag\_all | .9897506 .0066247 -1.54 0.124 .9768513 1.00282

sp77\_903\_pp\_c\_lag\_all | 1.0063 .0042097 1.50 0.133 .9980828 1.014585

sp77\_904\_pp\_c\_lag\_all | .9992071 .0010013 -0.79 0.429 .9972465 1.001171

mine\_time | .9990944 .0060311 -0.15 0.881 .9873432 1.010985

onsite\_insp\_hours | 1.000936 .000367 2.55 0.011 1.000217 1.001655

|

state |

AL | 1.14867 .2977744 0.53 0.593 .6910903 1.909219

CO | .5501964 .3018817 -1.09 0.276 .1877071 1.612705

IL | 1.597906 .6181511 1.21 0.226 .7486232 3.410666

IN | .5537859 .2557065 -1.28 0.201 .2240299 1.368919

MD | 1.290958 .3022442 1.09 0.275 .8158785 2.042673

NM | 4.314584 5.096712 1.24 0.216 .4260255 43.69606

OH | .5137183 .2313688 -1.48 0.139 .2125007 1.241909

OK | 1.020564 1.424637 0.01 0.988 .0661641 15.74196

PA | .5898586 .1386841 -2.25 0.025 .3720646 .9351418

TN | .8670162 .2426909 -0.51 0.610 .5009139 1.500691

UT | 4.628175 4.77164 1.49 0.137 .6135112 34.91379

VA | .6586665 .1596476 -1.72 0.085 .4095919 1.059205

WV | .9131508 .1556964 -0.53 0.594 .6537455 1.275488

WY | .1145495 .1611608 -1.54 0.124 .0072683 1.805331

|

time |

2007 | 1.226927 .3120101 0.80 0.421 .7453437 2.019673

2007.25 | .9020196 .2526241 -0.37 0.713 .5209838 1.561736

2007.5 | 1.271577 .3327257 0.92 0.359 .7614018 2.123593

2007.75 | 1.315785 .3400138 1.06 0.288 .7929118 2.18346

2008 | .9161151 .2354535 -0.34 0.733 .5535797 1.516072

2008.25 | .9354667 .2579537 -0.24 0.809 .5448922 1.606002

2008.5 | .861086 .2172262 -0.59 0.553 .5251868 1.41182

2009 | .7312026 .1791349 -1.28 0.201 .4523813 1.181873

2009.25 | .7335739 .2021219 -1.12 0.261 .4274762 1.258855

2009.5 | .7616465 .2047603 -1.01 0.311 .4496942 1.29

2009.75 | .5689191 .1625087 -1.97 0.048 .3250194 .995845

2010 | .7653378 .210466 -0.97 0.331 .446452 1.311993

2010.25 | .9426184 .265049 -0.21 0.834 .5432402 1.635611

2010.5 | 1.066503 .3198864 0.21 0.830 .5924519 1.919867

2010.75 | .7680078 .2256339 -0.90 0.369 .4318075 1.36597

2011 | .9402419 .2559705 -0.23 0.821 .5514541 1.603134

2011.25 | .9395009 .2628157 -0.22 0.823 .5429781 1.625594

2011.5 | 1.162999 .3265342 0.54 0.591 .6707925 2.016371

2011.75 | .6778182 .2099486 -1.26 0.209 .3693691 1.243844

2012 | .8355647 .2270937 -0.66 0.509 .4904972 1.423389

2012.25 | .7995881 .2306311 -0.78 0.438 .4543056 1.407293

2012.5 | 1.408983 .4159674 1.16 0.245 .7899682 2.513055

2012.75 | .8290562 .2501939 -0.62 0.534 .4588883 1.497824

2013 | .6354168 .1814069 -1.59 0.112 .3631172 1.111912

2013.25 | .5656427 .170559 -1.89 0.059 .3132407 1.021424

2013.5 | .7790495 .2437135 -0.80 0.425 .4219683 1.438302

2013.75 | .9260225 .3008432 -0.24 0.813 .4898757 1.75048

2014 | .5719925 .1713591 -1.86 0.062 .3179691 1.028953

2014.25 | .6381635 .2098017 -1.37 0.172 .3350366 1.215547

2014.5 | .850276 .257854 -0.53 0.593 .4692726 1.540617

2014.75 | 1.017936 .3296047 0.05 0.956 .5396401 1.920159

2015 | .9397687 .3112346 -0.19 0.851 .4910415 1.798555

2015.25 | .7164262 .2483321 -0.96 0.336 .3631806 1.413254

2015.5 | 1.055637 .3444122 0.17 0.868 .556931 2.00091

2015.75 | .6496432 .2424131 -1.16 0.248 .3126444 1.349892

2016 | .9131077 .3179377 -0.26 0.794 .4614659 1.806776

|

\_cons | .0000115 2.75e-06 -47.41 0.000 7.16e-06 .0000183

lnhours | 1 (offset)

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

(est1 stored)

**. lfit**

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

number of observations = 7012

number of covariate patterns = 7012

Pearson chi2(6663) = 7355.22

Prob > chi2 = 0.0000

**. linktest**

Iteration 0: log likelihood = -4541.6267

Iteration 1: log likelihood = -3056.8749

Iteration 2: log likelihood = -3011.848

Iteration 3: log likelihood = -3010.0609

Iteration 4: log likelihood = -3010.0584

Iteration 5: log likelihood = -3010.0584

Logistic regression Number of obs = 7,012

LR chi2(2) = 3063.14

Prob > chi2 = 0.0000

Log likelihood = -3010.0584 Pseudo R2 = 0.3372

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

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

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

\_hat | 1.007069 .0273688 36.80 0.000 .9534274 1.060711

\_hatsq | .002996 .0129558 0.23 0.817 -.0223969 .0283889

\_cons | -.0019315 .0395452 -0.05 0.961 -.0794388 .0755757

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

**. estat classification**

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 1548 478 | 2026

- | 909 4077 | 4986

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

Total | 2457 4555 | 7012

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

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

Sensitivity Pr( +| D) 63.00%

Specificity Pr( -|~D) 89.51%

Positive predictive value Pr( D| +) 76.41%

Negative predictive value Pr(~D| -) 81.77%

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

False + rate for true ~D Pr( +|~D) 10.49%

False - rate for true D Pr( -| D) 37.00%

False + rate for classified + Pr(~D| +) 23.59%

False - rate for classified - Pr( D| -) 18.23%

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

Correctly classified 80.22%

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**. summ MR\_indicator spbpp4\_yhat**

Variable | Obs Mean Std. Dev. Min Max

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

MR\_indicator | 30,289 .24187 .428223 0 1

spbpp4\_yhat | 13,669 .3064894 .2848015 .000011 .9999949