. // Model SP.B.PP.3

**. eststo: logit MR\_indicator `subpart\_pp\_lag\_4\_vars' `covariates' ib(freq).state ib(freq).time if sample\_pp == 1, vce(cl mineid) offset(lnhours) iter(50) or**

note: sp48\_24\_pp\_c\_4lag != 0 predicts failure perfectly

sp48\_24\_pp\_c\_4lag dropped and 1 obs not used

note: sp48\_4\_pp\_c\_4lag != 0 predicts success perfectly

sp48\_4\_pp\_c\_4lag dropped and 2 obs not used

note: sp71\_701\_pp\_c\_4lag != 0 predicts success perfectly

sp71\_701\_pp\_c\_4lag dropped and 1 obs not used

note: sp72\_610\_pp\_c\_4lag != 0 predicts success perfectly

sp72\_610\_pp\_c\_4lag dropped and 4 obs not used

note: sp75\_1003\_1\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_1003\_1\_pp\_c\_4lag dropped and 11 obs not used

note: sp75\_1400\_1\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_1400\_1\_pp\_c\_4lag dropped and 7 obs not used

note: sp75\_1401\_1\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_1401\_1\_pp\_c\_4lag dropped and 2 obs not used

note: sp75\_1403\_11\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_1403\_11\_pp\_c\_4lag dropped and 5 obs not used

note: sp75\_1403\_3\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_1403\_3\_pp\_c\_4lag dropped and 1 obs not used

note: sp75\_1403\_9\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_1403\_9\_pp\_c\_4lag dropped and 17 obs not used

note: sp75\_1437\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_1437\_pp\_c\_4lag dropped and 6 obs not used

note: sp75\_1727\_pp\_c\_4lag != 0 predicts failure perfectly

sp75\_1727\_pp\_c\_4lag dropped and 1 obs not used

note: sp75\_519\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_519\_pp\_c\_4lag dropped and 2 obs not used

note: sp75\_702\_1\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_702\_1\_pp\_c\_4lag dropped and 3 obs not used

note: sp75\_705\_3\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_705\_3\_pp\_c\_4lag dropped and 2 obs not used

note: sp75\_705\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_705\_pp\_c\_4lag dropped and 7 obs not used

note: sp75\_800\_2\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_800\_2\_pp\_c\_4lag dropped and 1 obs not used

note: sp75\_803\_2\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_803\_2\_pp\_c\_4lag dropped and 5 obs not used

note: sp75\_814\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_814\_pp\_c\_4lag dropped and 13 obs not used

note: sp75\_834\_pp\_c\_4lag != 0 predicts failure perfectly

sp75\_834\_pp\_c\_4lag dropped and 1 obs not used

note: sp77\_103\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_103\_pp\_c\_4lag dropped and 1 obs not used

note: sp77\_104\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_104\_pp\_c\_4lag dropped and 4 obs not used

note: sp77\_1432\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_1432\_pp\_c\_4lag dropped and 2 obs not used

note: sp77\_1434\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_1434\_pp\_c\_4lag dropped and 14 obs not used

note: sp77\_1438\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_1438\_pp\_c\_4lag dropped and 2 obs not used

note: sp77\_1802\_pp\_c\_4lag != 0 predicts failure perfectly

sp77\_1802\_pp\_c\_4lag dropped and 1 obs not used

note: sp75\_341\_pp\_c\_4lag != 0 predicts success perfectly

sp75\_341\_pp\_c\_4lag dropped and 2 obs not used

note: sp77\_1906\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_1906\_pp\_c\_4lag dropped and 9 obs not used

note: sp77\_1916\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_1916\_pp\_c\_4lag dropped and 6 obs not used

note: sp77\_216\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_216\_pp\_c\_4lag dropped and 57 obs not used

note: sp77\_409\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_409\_pp\_c\_4lag dropped and 2 obs not used

note: sp77\_500\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_500\_pp\_c\_4lag dropped and 3 obs not used

note: sp77\_510\_pp\_c\_4lag != 0 predicts failure perfectly

sp77\_510\_pp\_c\_4lag dropped and 1 obs not used

note: sp77\_606\_1\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_606\_1\_pp\_c\_4lag dropped and 2 obs not used

note: sp77\_703\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_703\_pp\_c\_4lag dropped and 3 obs not used

note: sp77\_704\_1\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_704\_1\_pp\_c\_4lag dropped and 2 obs not used

note: sp77\_802\_pp\_c\_4lag != 0 predicts failure perfectly

sp77\_802\_pp\_c\_4lag dropped and 4 obs not used

note: sp77\_807\_3\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_807\_3\_pp\_c\_4lag dropped and 5 obs not used

note: sp77\_808\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_808\_pp\_c\_4lag dropped and 5 obs not used

note: sp77\_901\_1\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_901\_1\_pp\_c\_4lag dropped and 2 obs not used

note: sp77\_902\_2\_pp\_c\_4lag != 0 predicts success perfectly

sp77\_902\_2\_pp\_c\_4lag dropped and 1 obs not used

note: 9.state != 0 predicts success perfectly

9.state dropped and 6 obs not used

note: 17.state != 0 predicts success perfectly

17.state dropped and 7 obs not used

note: sp75\_1001\_pp\_c\_4lag omitted because of collinearity

note: sp75\_1106\_6\_pp\_c\_4lag omitted because of collinearity

note: sp75\_1403\_4\_pp\_c\_4lag omitted because of collinearity

note: sp75\_1431\_pp\_c\_4lag omitted because of collinearity

note: sp75\_511\_1\_pp\_c\_4lag omitted because of collinearity

note: sp75\_806\_pp\_c\_4lag omitted because of collinearity

note: sp77\_305\_pp\_c\_4lag omitted because of collinearity

note: sp77\_309\_pp\_c\_4lag omitted because of collinearity

note: sp77\_314\_pp\_c\_4lag omitted because of collinearity

note: sp77\_315\_pp\_c\_4lag omitted because of collinearity

note: sp77\_403\_2\_pp\_c\_4lag omitted because of collinearity

note: sp77\_413\_pp\_c\_4lag omitted because of collinearity

note: sp77\_606\_pp\_c\_4lag omitted because of collinearity

note: sp77\_804\_pp\_c\_4lag omitted because of collinearity

Iteration 0: log pseudolikelihood = -1551.2488

Iteration 1: log pseudolikelihood = -1363.0677

Iteration 2: log pseudolikelihood = -1337.1254

Iteration 3: log pseudolikelihood = -1334.9946

Iteration 4: log pseudolikelihood = -1334.8854

Iteration 5: log pseudolikelihood = -1334.8687

Iteration 6: log pseudolikelihood = -1334.8632

Iteration 7: log pseudolikelihood = -1334.8617

Iteration 8: log pseudolikelihood = -1334.8613

Iteration 9: log pseudolikelihood = -1334.8612

Iteration 10: log pseudolikelihood = -1334.8611

Logistic regression Number of obs = 3,100

Wald chi2(286) = 9.64e+09

Log pseudolikelihood = -1334.8611 Prob > chi2 = 0.0000

(Std. Err. adjusted for 720 clusters in mineid)

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| Robust

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

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

sp47\_41\_pp\_c\_4lag | .9965032 .0010723 -3.26 0.001 .9944038 .9986071

sp47\_42\_pp\_c\_4lag | .9983292 .0028116 -0.59 0.553 .9928338 1.003855

sp47\_44\_pp\_c\_4lag | 1.008214 .0036019 2.29 0.022 1.001179 1.015298

sp48\_11\_pp\_c\_4lag | 1.003618 .001503 2.41 0.016 1.000676 1.006568

sp48\_24\_pp\_c\_4lag | 1 (omitted)

sp48\_25\_pp\_c\_4lag | .9984048 .0023437 -0.68 0.496 .9938218 1.003009

sp48\_26\_pp\_c\_4lag | 1.001635 .0013391 1.22 0.222 .9990143 1.004263

sp48\_27\_pp\_c\_4lag | .9990107 .0015051 -0.66 0.511 .9960651 1.001965

sp48\_28\_pp\_c\_4lag | .9969537 .0021786 -1.40 0.163 .9926929 1.001233

sp48\_4\_pp\_c\_4lag | 1 (omitted)

sp48\_5\_pp\_c\_4lag | 1.001803 .0021574 0.84 0.403 .9975839 1.006041

sp48\_6\_pp\_c\_4lag | .9997006 .0008642 -0.35 0.729 .9980081 1.001396

sp48\_7\_pp\_c\_4lag | 1.000865 .000967 0.89 0.371 .9989712 1.002762

sp48\_8\_pp\_c\_4lag | .9982691 .0019183 -0.90 0.367 .9945165 1.002036

sp71\_701\_pp\_c\_4lag | 1 (omitted)

sp72\_503\_pp\_c\_4lag | .9992277 .0020222 -0.38 0.703 .9952721 1.003199

sp72\_610\_pp\_c\_4lag | 1 (omitted)

sp72\_620\_pp\_c\_4lag | 1.0059 .0035026 1.69 0.091 .9990582 1.012788

sp72\_630\_pp\_c\_4lag | 1.000199 .0001639 1.21 0.226 .9998775 1.00052

sp75\_100\_pp\_c\_4lag | 1.001179 .0059991 0.20 0.844 .98949 1.013007

sp75\_1001\_1\_pp\_c\_4lag | 1.002131 .0022534 0.95 0.344 .9977246 1.006558

sp75\_1001\_pp\_c\_4lag | 1 (omitted)

sp75\_1003\_1\_pp\_c\_4lag | 1 (omitted)

sp75\_1100\_2\_pp\_c\_4lag | 1.000192 .0001826 1.05 0.292 .9998345 1.00055

sp75\_1101\_20\_pp\_c\_4lag | 1.005241 .003377 1.56 0.120 .9986443 1.011882

sp75\_1102\_pp\_c\_4lag | .9998376 .0006986 -0.23 0.816 .9984693 1.001208

sp75\_1103\_4\_pp\_c\_4lag | 1.000208 .0002351 0.89 0.376 .9997475 1.000669

sp75\_1104\_pp\_c\_4lag | .9985983 .0009341 -1.50 0.134 .9967692 1.000431

sp75\_1106\_2\_pp\_c\_4lag | 1.000259 .0012426 0.21 0.835 .997827 1.002698

sp75\_1106\_3\_pp\_c\_4lag | 1.000224 .0003766 0.59 0.552 .9994861 1.000963

sp75\_1106\_4\_pp\_c\_4lag | .9964361 .0025338 -1.40 0.160 .9914822 1.001415

sp75\_1106\_5\_pp\_c\_4lag | .9995476 .0008942 -0.51 0.613 .9977965 1.001302

sp75\_1106\_6\_pp\_c\_4lag | 1 (omitted)

sp75\_1106\_pp\_c\_4lag | 1.002752 .0027468 1.00 0.316 .9973828 1.00815

sp75\_1107\_14\_pp\_c\_4lag | .995692 .0073817 -0.58 0.560 .9813287 1.010265

sp75\_1400\_1\_pp\_c\_4lag | 1 (omitted)

sp75\_1400\_2\_pp\_c\_4lag | .9964138 .0046984 -0.76 0.446 .9872476 1.005665

sp75\_1400\_3\_pp\_c\_4lag | 1.000968 .0012826 0.75 0.450 .9984571 1.003485

sp75\_1400\_4\_pp\_c\_4lag | .9983805 .0035877 -0.45 0.652 .9913734 1.005437

sp75\_1400\_pp\_c\_4lag | 1.002036 .0031124 0.65 0.513 .9959543 1.008155

sp75\_1401\_1\_pp\_c\_4lag | 1 (omitted)

sp75\_1401\_pp\_c\_4lag | .9945726 .004423 -1.22 0.221 .9859414 1.003279

sp75\_1403\_10\_pp\_c\_4lag | 1.000985 .0007501 1.31 0.189 .9995161 1.002456

sp75\_1403\_11\_pp\_c\_4lag | 1 (omitted)

sp75\_1403\_3\_pp\_c\_4lag | 1 (omitted)

sp75\_1403\_4\_pp\_c\_4lag | 1 (omitted)

sp75\_1403\_5\_pp\_c\_4lag | .9995543 .0003923 -1.14 0.256 .9987857 1.000324

sp75\_1403\_6\_pp\_c\_4lag | .9994546 .0003515 -1.55 0.121 .9987659 1.000144

sp75\_1403\_7\_pp\_c\_4lag | .9995644 .0023356 -0.19 0.852 .9949971 1.004153

sp75\_1403\_8\_pp\_c\_4lag | .9991024 .0009718 -0.92 0.356 .9971996 1.001009

sp75\_1403\_9\_pp\_c\_4lag | 1 (omitted)

sp75\_1404\_1\_pp\_c\_4lag | .9801564 .0057143 -3.44 0.001 .9690203 .9914205

sp75\_1404\_pp\_c\_4lag | 1.002953 .010435 0.28 0.777 .9827075 1.023615

sp75\_1405\_1\_pp\_c\_4lag | 1.002091 .0045863 0.46 0.648 .9931421 1.01112

sp75\_1405\_pp\_c\_4lag | 1.001383 .0007654 1.81 0.071 .9998839 1.002884

sp75\_1431\_pp\_c\_4lag | 1 (omitted)

sp75\_1432\_pp\_c\_4lag | 1.009041 .0043336 2.10 0.036 1.000583 1.01757

sp75\_1433\_pp\_c\_4lag | .9998717 .0024483 -0.05 0.958 .9950845 1.004682

sp75\_1434\_pp\_c\_4lag | .9963773 .006787 -0.53 0.594 .9831634 1.009769

sp75\_1435\_pp\_c\_4lag | .9966437 .0054086 -0.62 0.536 .9860992 1.007301

sp75\_1437\_pp\_c\_4lag | 1 (omitted)

sp75\_150\_pp\_c\_4lag | 1.004755 .0067774 0.70 0.482 .9915593 1.018127

sp75\_151\_pp\_c\_4lag | 1.003503 .0132819 0.26 0.792 .9778053 1.029875

sp75\_153\_pp\_c\_4lag | 1.017493 .0115923 1.52 0.128 .9950245 1.040469

sp75\_156\_pp\_c\_4lag | 1.000456 .0043382 0.11 0.916 .9919895 1.008995

sp75\_160\_pp\_c\_4lag | .9991659 .0085375 -0.10 0.922 .9825721 1.01604

sp75\_1600\_2\_pp\_c\_4lag | .9990783 .0004579 -2.01 0.044 .9981812 .9999762

sp75\_1712\_10\_pp\_c\_4lag | .9996648 .0031554 -0.11 0.915 .9934994 1.005868

sp75\_1712\_6\_pp\_c\_4lag | 1.000892 .0011481 0.78 0.437 .9986444 1.003145

sp75\_1720\_pp\_c\_4lag | 1.00035 .0005956 0.59 0.557 .9991835 1.001518

sp75\_1721\_pp\_c\_4lag | 1.00017 .0040501 0.04 0.967 .9922633 1.00814

sp75\_1725\_pp\_c\_4lag | 1.00018 .0000973 1.85 0.064 .9999894 1.000371

sp75\_1726\_pp\_c\_4lag | 1.003235 .0023371 1.39 0.166 .9986653 1.007827

sp75\_1727\_pp\_c\_4lag | 1 (omitted)

sp75\_1728\_pp\_c\_4lag | .9992336 .0053524 -0.14 0.886 .988798 1.009779

sp75\_1729\_pp\_c\_4lag | 1.005242 .0042821 1.23 0.220 .9968838 1.013669

sp75\_1730\_pp\_c\_4lag | 1.007524 .0034679 2.18 0.029 1.00075 1.014344

sp75\_1731\_pp\_c\_4lag | .9998733 .0000583 -2.17 0.030 .999759 .9999876

sp75\_1903\_pp\_c\_4lag | 1.003753 .0058117 0.65 0.518 .9924268 1.015209

sp75\_1909\_pp\_c\_4lag | .9999724 .0001879 -0.15 0.883 .9996043 1.000341

sp75\_1910\_pp\_c\_4lag | 1.000094 .0003813 0.25 0.806 .9993468 1.000841

sp75\_1911\_pp\_c\_4lag | 1.000614 .0003341 1.84 0.066 .9999597 1.001269

sp75\_1912\_pp\_c\_4lag | .998615 .0038333 -0.36 0.718 .9911302 1.006156

sp75\_1913\_pp\_c\_4lag | .9933217 .0029428 -2.26 0.024 .9875707 .9991062

sp75\_1914\_pp\_c\_4lag | 1.000145 .0002686 0.54 0.590 .9996182 1.000671

sp75\_1915\_pp\_c\_4lag | 1.002337 .0030795 0.76 0.447 .9963194 1.008391

sp75\_202\_pp\_c\_4lag | 1.000049 .0000435 1.13 0.261 .9999637 1.000134

sp75\_208\_pp\_c\_4lag | .9993928 .0003899 -1.56 0.119 .9986289 1.000157

sp75\_211\_pp\_c\_4lag | .9998607 .0003159 -0.44 0.659 .9992418 1.00048

sp75\_212\_pp\_c\_4lag | .9988023 .0011086 -1.08 0.280 .9966319 1.000977

sp75\_214\_pp\_c\_4lag | 1.000524 .0007548 0.69 0.487 .9990461 1.002005

sp75\_312\_pp\_c\_4lag | 1.000016 .000493 0.03 0.974 .9990505 1.000983

sp75\_320\_pp\_c\_4lag | .9994961 .0003075 -1.64 0.101 .9988935 1.000099

sp75\_324\_pp\_c\_4lag | .9999582 .0014923 -0.03 0.978 .9970375 1.002887

sp75\_337\_pp\_c\_4lag | .9996624 .000618 -0.55 0.585 .9984519 1.000874

sp75\_340\_pp\_c\_4lag | .9998023 .0003075 -0.64 0.520 .9991997 1.000405

sp75\_341\_pp\_c\_4lag | 1 (omitted)

sp75\_342\_pp\_c\_4lag | .9999806 .000135 -0.14 0.886 .999716 1.000245

sp75\_344\_pp\_c\_4lag | .9976905 .0026481 -0.87 0.384 .9925138 1.002894

sp75\_352\_pp\_c\_4lag | 1.000079 .0014092 0.06 0.955 .9973209 1.002845

sp75\_382\_pp\_c\_4lag | 1.000815 .0018176 0.45 0.654 .9972592 1.004384

sp75\_503\_pp\_c\_4lag | 1.000081 .0000646 1.25 0.211 .9999541 1.000207

sp75\_504\_pp\_c\_4lag | .9982015 .0014718 -1.22 0.222 .9953209 1.00109

sp75\_505\_pp\_c\_4lag | 1.004471 .0025774 1.74 0.082 .9994319 1.009535

sp75\_506\_1\_pp\_c\_4lag | 1.005995 .0030998 1.94 0.052 .9999382 1.012089

sp75\_506\_pp\_c\_4lag | 1.000573 .0015338 0.37 0.709 .9975709 1.003583

sp75\_507\_pp\_c\_4lag | .9997437 .0008181 -0.31 0.754 .9981415 1.001348

sp75\_511\_1\_pp\_c\_4lag | 1 (omitted)

sp75\_511\_pp\_c\_4lag | .9986341 .0008154 -1.67 0.094 .9970371 1.000234

sp75\_512\_1\_pp\_c\_4lag | 1.002636 .0088027 0.30 0.764 .9855305 1.020038

sp75\_512\_2\_pp\_c\_4lag | 1.00091 .0004069 2.24 0.025 1.000112 1.001707

sp75\_512\_pp\_c\_4lag | .9999163 .0000814 -1.03 0.304 .9997568 1.000076

sp75\_513\_1\_pp\_c\_4lag | 1.005445 .0029741 1.84 0.066 .9996323 1.011291

sp75\_513\_pp\_c\_4lag | .9993294 .0013804 -0.49 0.627 .9966275 1.002039

sp75\_514\_pp\_c\_4lag | .9999089 .00035 -0.26 0.795 .9992232 1.000595

sp75\_515\_pp\_c\_4lag | .9994272 .0002365 -2.42 0.015 .9989637 .9998909

sp75\_516\_1\_pp\_c\_4lag | 1.001467 .0050041 0.29 0.769 .9917072 1.011323

sp75\_516\_2\_pp\_c\_4lag | .9997647 .0007598 -0.31 0.757 .9982766 1.001255

sp75\_516\_pp\_c\_4lag | .999459 .0003319 -1.63 0.103 .9988088 1.00011

sp75\_517\_1\_pp\_c\_4lag | 1.008024 .0055589 1.45 0.147 .9971869 1.018978

sp75\_517\_pp\_c\_4lag | .9998699 .0000724 -1.80 0.072 .999728 1.000012

sp75\_518\_1\_pp\_c\_4lag | .9999898 .0004166 -0.02 0.980 .9991736 1.000807

sp75\_518\_pp\_c\_4lag | 1.000195 .0003048 0.64 0.521 .9995982 1.000793

sp75\_519\_pp\_c\_4lag | 1 (omitted)

sp75\_520\_pp\_c\_4lag | .9988054 .0009044 -1.32 0.187 .9970344 1.00058

sp75\_523\_1\_pp\_c\_4lag | 1.000211 .0006148 0.34 0.731 .9990069 1.001417

sp75\_523\_2\_pp\_c\_4lag | 1.000454 .0005506 0.83 0.409 .999376 1.001534

sp75\_523\_pp\_c\_4lag | .9984409 .0007714 -2.02 0.043 .9969301 .9999539

sp75\_600\_1\_pp\_c\_4lag | .9961396 .0021617 -1.78 0.075 .9919117 1.000386

sp75\_600\_pp\_c\_4lag | .9996526 .0048974 -0.07 0.943 .9900998 1.009297

sp75\_601\_1\_pp\_c\_4lag | .9997572 .0003043 -0.80 0.425 .999161 1.000354

sp75\_601\_2\_pp\_c\_4lag | .9944383 .00733 -0.76 0.449 .980175 1.008909

sp75\_601\_3\_pp\_c\_4lag | 1.0013 .0054326 0.24 0.811 .9907093 1.012005

sp75\_601\_pp\_c\_4lag | .9997287 .0003531 -0.77 0.442 .9990368 1.000421

sp75\_602\_pp\_c\_4lag | .9996315 .0010174 -0.36 0.717 .9976395 1.001628

sp75\_603\_pp\_c\_4lag | 1.00213 .001383 1.54 0.123 .9994231 1.004844

sp75\_604\_pp\_c\_4lag | 1.000151 .0001363 1.11 0.267 .9998842 1.000419

sp75\_605\_pp\_c\_4lag | .9998995 .0004218 -0.24 0.812 .9990731 1.000727

sp75\_606\_pp\_c\_4lag | 1.000122 .000211 0.58 0.564 .9997083 1.000535

sp75\_607\_pp\_c\_4lag | .9995891 .0009078 -0.45 0.651 .9978114 1.00137

sp75\_700\_1\_pp\_c\_4lag | .9990341 .0031219 -0.31 0.757 .9929339 1.005172

sp75\_700\_pp\_c\_4lag | .9987015 .0010675 -1.22 0.224 .9966114 1.000796

sp75\_701\_1\_pp\_c\_4lag | 1.001526 .0028435 0.54 0.591 .9959679 1.007114

sp75\_701\_2\_pp\_c\_4lag | 1.001843 .0017585 1.05 0.294 .9984021 1.005295

sp75\_701\_3\_pp\_c\_4lag | 1.004562 .0033538 1.36 0.173 .9980102 1.011157

sp75\_701\_4\_pp\_c\_4lag | 1.000979 .0038621 0.25 0.800 .9934381 1.008577

sp75\_701\_pp\_c\_4lag | 1.000177 .0003026 0.58 0.559 .999584 1.00077

sp75\_702\_1\_pp\_c\_4lag | 1 (omitted)

sp75\_702\_pp\_c\_4lag | 1.004366 .0041014 1.07 0.286 .9963591 1.012437

sp75\_703\_1\_pp\_c\_4lag | 1.259341 .0322419 9.01 0.000 1.197707 1.324146

sp75\_703\_2\_pp\_c\_4lag | .9975834 .0072122 -0.33 0.738 .9835473 1.01182

sp75\_703\_3\_pp\_c\_4lag | 1.001364 .0016221 0.84 0.400 .9981894 1.004548

sp75\_703\_4\_pp\_c\_4lag | .9843551 .0071631 -2.17 0.030 .9704153 .9984952

sp75\_703\_pp\_c\_4lag | 1.001017 .000619 1.64 0.100 .9998046 1.002231

sp75\_704\_pp\_c\_4lag | 1.003372 .0028335 1.19 0.233 .9978337 1.008941

sp75\_705\_1\_pp\_c\_4lag | 1.009621 .0031907 3.03 0.002 1.003387 1.015894

sp75\_705\_3\_pp\_c\_4lag | 1 (omitted)

sp75\_705\_8\_pp\_c\_4lag | 1.000988 .0024991 0.40 0.693 .9961014 1.005898

sp75\_705\_pp\_c\_4lag | 1 (omitted)

sp75\_706\_pp\_c\_4lag | 1.000499 .0013869 0.36 0.719 .9977845 1.003221

sp75\_800\_2\_pp\_c\_4lag | 1 (omitted)

sp75\_800\_3\_pp\_c\_4lag | 1.004696 .0019266 2.44 0.015 1.000927 1.008479

sp75\_800\_4\_pp\_c\_4lag | .9993883 .0016324 -0.37 0.708 .9961939 1.002593

sp75\_800\_pp\_c\_4lag | .9992218 .0016806 -0.46 0.643 .9959334 1.002521

sp75\_801\_pp\_c\_4lag | .9979964 .0041752 -0.48 0.632 .9898466 1.006213

sp75\_802\_pp\_c\_4lag | .9970908 .0030576 -0.95 0.342 .9911161 1.003102

sp75\_803\_2\_pp\_c\_4lag | 1 (omitted)

sp75\_803\_pp\_c\_4lag | 1.002584 .0016502 1.57 0.117 .9993553 1.005824

sp75\_804\_pp\_c\_4lag | 1.001473 .002839 0.52 0.604 .9959241 1.007053

sp75\_805\_pp\_c\_4lag | 1.00326 .001999 1.63 0.102 .9993495 1.007186

sp75\_806\_pp\_c\_4lag | 1 (omitted)

sp75\_807\_pp\_c\_4lag | 1.000159 .0002395 0.66 0.507 .9996897 1.000629

sp75\_808\_pp\_c\_4lag | 1.005102 .0019977 2.56 0.010 1.001195 1.009025

sp75\_809\_pp\_c\_4lag | 1.001146 .0007302 1.57 0.116 .999716 1.002578

sp75\_810\_pp\_c\_4lag | .9994151 .0009828 -0.59 0.552 .9974908 1.001343

sp75\_811\_pp\_c\_4lag | 1.001411 .0010998 1.28 0.199 .9992575 1.003569

sp75\_812\_pp\_c\_4lag | .9927855 .0031168 -2.31 0.021 .9866955 .9989131

sp75\_814\_pp\_c\_4lag | 1 (omitted)

sp75\_815\_pp\_c\_4lag | 1.006447 .0054986 1.18 0.240 .9957273 1.017282

sp75\_816\_pp\_c\_4lag | 1.000191 .0005783 0.33 0.741 .9990583 1.001325

sp75\_818\_pp\_c\_4lag | .9978344 .0041953 -0.52 0.606 .9896455 1.006091

sp75\_820\_pp\_c\_4lag | 1.002884 .0034748 0.83 0.406 .9960966 1.009718

sp75\_821\_pp\_c\_4lag | 1.009064 .0066056 1.38 0.168 .9961995 1.022094

sp75\_825\_pp\_c\_4lag | .9984468 .003898 -0.40 0.691 .9908362 1.006116

sp75\_827\_pp\_c\_4lag | 1.002269 .0050761 0.45 0.654 .9923697 1.012268

sp75\_831\_pp\_c\_4lag | .9988891 .0043048 -0.26 0.796 .9904874 1.007362

sp75\_832\_pp\_c\_4lag | .9862955 .0079642 -1.71 0.087 .9708088 1.002029

sp75\_834\_pp\_c\_4lag | 1 (omitted)

sp75\_900\_2\_pp\_c\_4lag | .9872515 .0121956 -1.04 0.299 .9636356 1.011446

sp75\_900\_3\_pp\_c\_4lag | .997554 .0013665 -1.79 0.074 .9948793 1.000236

sp75\_900\_4\_pp\_c\_4lag | .9994484 .0009542 -0.58 0.563 .9975799 1.00132

sp75\_900\_pp\_c\_4lag | .9999727 .0004472 -0.06 0.951 .9990966 1.00085

sp75\_901\_pp\_c\_4lag | .9974603 .0015784 -1.61 0.108 .9943715 1.000559

sp75\_902\_1\_pp\_c\_4lag | 1.011051 .0066401 1.67 0.094 .9981196 1.024149

sp75\_902\_2\_pp\_c\_4lag | 1.002976 .0031651 0.94 0.346 .9967916 1.009199

sp75\_902\_4\_pp\_c\_4lag | 1.002224 .0009874 2.25 0.024 1.00029 1.004161

sp75\_902\_pp\_c\_4lag | 1.000318 .0003882 0.82 0.413 .9995571 1.001079

sp75\_903\_pp\_c\_4lag | .9998474 .000647 -0.24 0.814 .9985801 1.001116

sp75\_904\_pp\_c\_4lag | 1.000428 .0002467 1.73 0.083 .9999445 1.000912

sp75\_905\_pp\_c\_4lag | .9960927 .0038576 -1.01 0.312 .9885605 1.003682

sp75\_907\_pp\_c\_4lag | 1.000429 .0014112 0.30 0.761 .9976666 1.003198

sp77\_103\_pp\_c\_4lag | 1 (omitted)

sp77\_104\_pp\_c\_4lag | 1 (omitted)

sp77\_1103\_pp\_c\_4lag | 1.000027 .0005883 0.05 0.963 .9988747 1.001181

sp77\_1104\_pp\_c\_4lag | .9999413 .0002186 -0.27 0.788 .9995129 1.00037

sp77\_1106\_pp\_c\_4lag | 1.001172 .0081072 0.14 0.885 .9854079 1.017189

sp77\_1111\_pp\_c\_4lag | .9975809 .0047078 -0.51 0.608 .9883962 1.006851

sp77\_1112\_pp\_c\_4lag | 1.000112 .0043092 0.03 0.979 .9917017 1.008594

sp77\_1403\_pp\_c\_4lag | 1.000665 .0072207 0.09 0.927 .9866121 1.014918

sp77\_1432\_pp\_c\_4lag | 1 (omitted)

sp77\_1433\_pp\_c\_4lag | .9997432 .0071626 -0.04 0.971 .9858028 1.013881

sp77\_1434\_pp\_c\_4lag | 1 (omitted)

sp77\_1437\_pp\_c\_4lag | 1.001504 .0047611 0.32 0.752 .9922154 1.010879

sp77\_1438\_pp\_c\_4lag | 1 (omitted)

sp77\_1605\_pp\_c\_4lag | .9999201 .0002103 -0.38 0.704 .999508 1.000332

sp77\_1606\_pp\_c\_4lag | 1.0002 .0003353 0.60 0.551 .9995431 1.000857

sp77\_1710\_pp\_c\_4lag | .9994597 .0006365 -0.85 0.396 .9982129 1.000708

sp77\_1802\_pp\_c\_4lag | 1 (omitted)

sp77\_1906\_pp\_c\_4lag | 1 (omitted)

sp77\_1915\_pp\_c\_4lag | 1.002111 .0025897 0.82 0.415 .9970479 1.007199

sp77\_1916\_pp\_c\_4lag | 1 (omitted)

sp77\_200\_pp\_c\_4lag | 1.000272 .001078 0.25 0.801 .9981615 1.002387

sp77\_202\_pp\_c\_4lag | .9976834 .0006835 -3.39 0.001 .9963446 .999024

sp77\_203\_pp\_c\_4lag | .9972306 .0034084 -0.81 0.417 .9905725 1.003933

sp77\_204\_pp\_c\_4lag | 1.000113 .0013896 0.08 0.935 .9973932 1.002841

sp77\_205\_pp\_c\_4lag | 1.000696 .0002722 2.56 0.011 1.000162 1.001229

sp77\_206\_pp\_c\_4lag | 1.003202 .001745 1.84 0.066 .9997875 1.006628

sp77\_207\_pp\_c\_4lag | .9990069 .0007835 -1.27 0.205 .9974724 1.000544

sp77\_208\_pp\_c\_4lag | 1.000794 .0004462 1.78 0.075 .9999202 1.001669

sp77\_210\_pp\_c\_4lag | 1.002465 .0028079 0.88 0.379 .9969766 1.007983

sp77\_216\_pp\_c\_4lag | 1 (omitted)

sp77\_305\_pp\_c\_4lag | 1 (omitted)

sp77\_309\_pp\_c\_4lag | 1 (omitted)

sp77\_314\_pp\_c\_4lag | 1 (omitted)

sp77\_315\_pp\_c\_4lag | 1 (omitted)

sp77\_400\_pp\_c\_4lag | .9999049 .0003039 -0.31 0.754 .9993096 1.000501

sp77\_401\_pp\_c\_4lag | .9968503 .0014024 -2.24 0.025 .9941054 .9996027

sp77\_402\_pp\_c\_4lag | .9995596 .000985 -0.45 0.655 .9976308 1.001492

sp77\_403\_1\_pp\_c\_4lag | 1.00112 .0040129 0.28 0.780 .9932855 1.009016

sp77\_403\_2\_pp\_c\_4lag | 1 (omitted)

sp77\_403\_pp\_c\_4lag | 1.002719 .0039607 0.69 0.492 .9949864 1.010512

sp77\_404\_pp\_c\_4lag | 1.000255 .0001818 1.41 0.160 .9998993 1.000612

sp77\_405\_pp\_c\_4lag | 1.00355 .002329 1.53 0.127 .998996 1.008126

sp77\_408\_pp\_c\_4lag | 1.000704 .0024822 0.28 0.776 .9958512 1.005581

sp77\_409\_pp\_c\_4lag | 1 (omitted)

sp77\_410\_pp\_c\_4lag | 1.000074 .0003356 0.22 0.826 .9994165 1.000732

sp77\_411\_pp\_c\_4lag | .9878235 .0058937 -2.05 0.040 .9763394 .9994427

sp77\_412\_pp\_c\_4lag | 1.003345 .0032021 1.05 0.295 .9970891 1.009641

sp77\_413\_pp\_c\_4lag | 1 (omitted)

sp77\_500\_pp\_c\_4lag | 1 (omitted)

sp77\_501\_pp\_c\_4lag | .9985771 .002504 -0.57 0.570 .9936813 1.003497

sp77\_502\_1\_pp\_c\_4lag | 1.006702 .0069599 0.97 0.334 .9931527 1.020436

sp77\_502\_2\_pp\_c\_4lag | 1.001873 .0017388 1.08 0.281 .9984703 1.005286

sp77\_502\_pp\_c\_4lag | 1.000043 .0002946 0.14 0.885 .9994653 1.00062

sp77\_503\_1\_pp\_c\_4lag | 1.002445 .0056751 0.43 0.666 .991384 1.01363

sp77\_503\_pp\_c\_4lag | .9983781 .0028059 -0.58 0.564 .9928937 1.003893

sp77\_504\_pp\_c\_4lag | .998551 .0009723 -1.49 0.136 .9966472 1.000459

sp77\_505\_pp\_c\_4lag | 1.000317 .0004712 0.67 0.502 .9993936 1.001241

sp77\_506\_1\_pp\_c\_4lag | 1.000934 .0009221 1.01 0.311 .9991281 1.002743

sp77\_506\_pp\_c\_4lag | .99974 .0008943 -0.29 0.771 .9979886 1.001494

sp77\_507\_pp\_c\_4lag | .9987032 .0018749 -0.69 0.489 .9950353 1.002385

sp77\_508\_1\_pp\_c\_4lag | .9948964 .0031751 -1.60 0.109 .9886927 1.001139

sp77\_508\_pp\_c\_4lag | 1.001706 .0016732 1.02 0.308 .9984318 1.004991

sp77\_509\_pp\_c\_4lag | .9988535 .0011576 -0.99 0.322 .9965871 1.001125

sp77\_510\_pp\_c\_4lag | 1 (omitted)

sp77\_511\_pp\_c\_4lag | .9982328 .0033563 -0.53 0.599 .9916763 1.004833

sp77\_512\_pp\_c\_4lag | .9999616 .0005957 -0.06 0.949 .9987948 1.00113

sp77\_513\_pp\_c\_4lag | .9991474 .0006599 -1.29 0.197 .9978549 1.000442

sp77\_514\_pp\_c\_4lag | .9742203 .0072498 -3.51 0.000 .960114 .9885338

sp77\_515\_pp\_c\_4lag | .9991794 .0082766 -0.10 0.921 .9830886 1.015534

sp77\_516\_pp\_c\_4lag | .9993179 .0003416 -2.00 0.046 .9986486 .9999876

sp77\_600\_pp\_c\_4lag | 1.006528 .0023899 2.74 0.006 1.001855 1.011223

sp77\_601\_pp\_c\_4lag | .9964986 .0032135 -1.09 0.277 .99022 1.002817

sp77\_602\_pp\_c\_4lag | .997502 .0045272 -0.55 0.582 .9886683 1.006415

sp77\_603\_pp\_c\_4lag | 1.014699 .0053354 2.78 0.006 1.004296 1.025211

sp77\_604\_pp\_c\_4lag | .9997159 .0016366 -0.17 0.862 .9965134 1.002929

sp77\_605\_pp\_c\_4lag | .9950189 .0052608 -0.94 0.345 .9847611 1.005384

sp77\_606\_1\_pp\_c\_4lag | 1 (omitted)

sp77\_606\_pp\_c\_4lag | 1 (omitted)

sp77\_700\_1\_pp\_c\_4lag | 1.006103 .0045099 1.36 0.175 .9973028 1.014982

sp77\_700\_pp\_c\_4lag | .9968941 .0018441 -1.68 0.093 .9932862 1.000515

sp77\_701\_1\_pp\_c\_4lag | 1.000135 .0027677 0.05 0.961 .9947252 1.005574

sp77\_701\_2\_pp\_c\_4lag | .9995279 .0014397 -0.33 0.743 .99671 1.002354

sp77\_701\_3\_pp\_c\_4lag | 1.008261 .0053691 1.54 0.122 .9977923 1.018839

sp77\_701\_4\_pp\_c\_4lag | 1.002721 .0025698 1.06 0.289 .997697 1.00777

sp77\_701\_pp\_c\_4lag | 1.000529 .0006385 0.83 0.407 .9992788 1.001782

sp77\_703\_pp\_c\_4lag | 1 (omitted)

sp77\_704\_1\_pp\_c\_4lag | 1 (omitted)

sp77\_704\_8\_pp\_c\_4lag | .9993121 .0052899 -0.13 0.897 .9889976 1.009734

sp77\_704\_9\_pp\_c\_4lag | .9918849 .0051725 -1.56 0.118 .9817985 1.002075

sp77\_704\_pp\_c\_4lag | .9940078 .0039208 -1.52 0.128 .9863528 1.001722

sp77\_705\_pp\_c\_4lag | 1.002114 .0013586 1.56 0.119 .9994553 1.004781

sp77\_800\_1\_pp\_c\_4lag | .9986182 .0038663 -0.36 0.721 .9910691 1.006225

sp77\_800\_2\_pp\_c\_4lag | 1.000511 .002835 0.18 0.857 .9949698 1.006083

sp77\_800\_pp\_c\_4lag | .9901366 .0055927 -1.75 0.079 .9792355 1.001159

sp77\_801\_pp\_c\_4lag | .7929169 .0192513 -9.56 0.000 .7560687 .831561

sp77\_802\_pp\_c\_4lag | 1 (omitted)

sp77\_803\_pp\_c\_4lag | .9991761 .0030562 -0.27 0.788 .993204 1.005184

sp77\_804\_pp\_c\_4lag | 1 (omitted)

sp77\_805\_pp\_c\_4lag | 1.012894 .0088372 1.47 0.142 .9957208 1.030364

sp77\_807\_1\_pp\_c\_4lag | 1.007286 .0045188 1.62 0.106 .9984679 1.016181

sp77\_807\_2\_pp\_c\_4lag | 1.007681 .0084373 0.91 0.361 .9912796 1.024354

sp77\_807\_3\_pp\_c\_4lag | 1 (omitted)

sp77\_807\_pp\_c\_4lag | 1.00043 .002644 0.16 0.871 .9952614 1.005626

sp77\_808\_pp\_c\_4lag | 1 (omitted)

sp77\_809\_pp\_c\_4lag | .9985576 .0013078 -1.10 0.270 .9959977 1.001124

sp77\_810\_pp\_c\_4lag | 1.000278 .003325 0.08 0.933 .9937826 1.006816

sp77\_900\_1\_pp\_c\_4lag | .9992083 .0045591 -0.17 0.862 .9903124 1.008184

sp77\_900\_2\_pp\_c\_4lag | 1.002201 .0020552 1.07 0.284 .9981814 1.006238

sp77\_900\_pp\_c\_4lag | .9963541 .0020435 -1.78 0.075 .992357 1.000367

sp77\_901\_1\_pp\_c\_4lag | 1 (omitted)

sp77\_901\_pp\_c\_4lag | 1.002937 .0042302 0.70 0.487 .9946798 1.011262

sp77\_902\_2\_pp\_c\_4lag | 1 (omitted)

sp77\_902\_3\_pp\_c\_4lag | .9986845 .0032513 -0.40 0.686 .9923323 1.005077

sp77\_902\_pp\_c\_4lag | .9979822 .0033348 -0.60 0.546 .9914675 1.00454

sp77\_903\_pp\_c\_4lag | .9996833 .0025723 -0.12 0.902 .9946544 1.004738

sp77\_904\_pp\_c\_4lag | 1.000091 .0007128 0.13 0.898 .9986952 1.001489

mine\_time | 1.002976 .0163748 0.18 0.856 .9713903 1.035589

onsite\_insp\_hours | 1.000751 .0002659 2.82 0.005 1.00023 1.001272

|

state |

1 | 1.324715 .6135616 0.61 0.544 .5344111 3.283743

2 | 3.448326 1.64205 2.60 0.009 1.356053 8.768793

3 | 1.186767 .9573914 0.21 0.832 .2441644 5.768311

4 | 1.761683 .7219335 1.38 0.167 .7890552 3.933219

5 | .9752749 .3416977 -0.07 0.943 .4907945 1.938003

6 | .7984854 .1314277 -1.37 0.172 .5783122 1.102482

7 | 1.50863 .4406444 1.41 0.159 .851063 2.674261

8 | .1453313 .1092615 -2.57 0.010 .0332979 .6343094

9 | 1 (empty)

10 | .4008105 .1755539 -2.09 0.037 .1698695 .9457208

11 | .3613344 .2360539 -1.56 0.119 .100423 1.300126

12 | .9189826 .2400766 -0.32 0.746 .550729 1.533475

13 | 2.383852 1.330809 1.56 0.120 .7981551 7.119855

14 | 1.306568 .5579306 0.63 0.531 .5657855 3.017255

15 | .5214473 .099421 -3.42 0.001 .3588536 .7577108

17 | 1 (empty)

|

time |

2007 | 1.518371 .2804231 2.26 0.024 1.057237 2.180638

2009 | .4618998 .0917816 -3.89 0.000 .3129034 .6818445

2010 | .7190203 .1477605 -1.61 0.108 .4806368 1.075636

2011 | .8924705 .1693338 -0.60 0.549 .6153048 1.294486

2012 | .8070361 .1674022 -1.03 0.301 .5374395 1.211871

2013 | .5723188 .1340594 -2.38 0.017 .3616208 .9057796

2014 | .4882945 .1177783 -2.97 0.003 .304347 .7834199

2015 | .6735969 .1597349 -1.67 0.096 .4232028 1.072141

|

\_cons | 8.86e-06 1.73e-06 -59.65 0.000 6.04e-06 .000013

lnhours | 1 (offset)

**. lfit**

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

number of observations = 3100

number of covariate patterns = 3100

Pearson chi2(2813) = 2662.16

Prob > chi2 = 0.9793

**. linktest**

Iteration 0: log likelihood = -2146.1949

Iteration 1: log likelihood = -1350.6623

Iteration 2: log likelihood = -1333.9195

Iteration 3: log likelihood = -1333.5096

Iteration 4: log likelihood = -1333.5087

Iteration 5: log likelihood = -1333.5087

Logistic regression Number of obs = 3,100

LR chi2(2) = 1625.37

Prob > chi2 = 0.0000

Log likelihood = -1333.5087 Pseudo R2 = 0.3787

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

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

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

\_hat | 1.063548 .0403202 26.38 0.000 .984522 1.142574

\_hatsq | -.009556 .019628 -0.49 0.626 -.0480261 .0289142

\_cons | .0166771 .0554568 0.30 0.764 -.0920162 .1253704

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

Note: 1 failure and 4 successes completely determined.

**. estat classification**

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 1280 302 | 1582

- | 333 1185 | 1518

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

Total | 1613 1487 | 3100

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

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

Sensitivity Pr( +| D) 79.36%

Specificity Pr( -|~D) 79.69%

Positive predictive value Pr( D| +) 80.91%

Negative predictive value Pr(~D| -) 78.06%

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

False + rate for true ~D Pr( +|~D) 20.31%

False - rate for true D Pr( -| D) 20.64%

False + rate for classified + Pr(~D| +) 19.09%

False - rate for classified - Pr( D| -) 21.94%

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

Correctly classified 79.52%

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

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**. summ MR\_indicator spbpp3\_yhat**

Variable | Obs Mean Std. Dev. Min Max

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

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

spbpp3\_yhat | 5,936 .468094 .3013006 1.23e-17 1