. // 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: sp71\_701\_pp\_c\_lag\_all != 0 predicts success perfectly

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

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

sp72\_610\_pp\_c\_lag\_all dropped and 2 obs not used

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

sp75\_1003\_1\_pp\_c\_lag\_all dropped and 31 obs not used

note: sp75\_1106\_6\_pp\_c\_lag\_all != 0 predicts success perfectly

sp75\_1106\_6\_pp\_c\_lag\_all dropped and 9 obs not used

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

sp75\_1107\_14\_pp\_c\_lag\_all dropped and 7 obs not used

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

sp75\_1401\_1\_pp\_c\_lag\_all dropped and 7 obs not used

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

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

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

sp75\_1403\_4\_pp\_c\_lag\_all dropped and 9 obs not used

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

sp75\_1403\_9\_pp\_c\_lag\_all dropped and 37 obs not used

note: sp75\_703\_4\_pp\_c\_lag\_all != 0 predicts success perfectly

sp75\_703\_4\_pp\_c\_lag\_all dropped and 3 obs not used

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

sp77\_104\_pp\_c\_lag\_all dropped and 2 obs not used

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

sp77\_1438\_pp\_c\_lag\_all dropped and 1 obs not used

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

sp77\_1802\_pp\_c\_lag\_all dropped and 2 obs not used

note: sp77\_305\_pp\_c\_lag\_all != 0 predicts success perfectly

sp77\_305\_pp\_c\_lag\_all dropped and 2 obs not used

note: sp77\_309\_pp\_c\_lag\_all != 0 predicts success perfectly

sp77\_309\_pp\_c\_lag\_all dropped and 7 obs not used

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

sp77\_502\_1\_pp\_c\_lag\_all dropped and 1 obs not used

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

sp77\_606\_1\_pp\_c\_lag\_all dropped and 1 obs not used

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

sp75\_806\_pp\_c\_lag\_all dropped and 9 obs not used

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

sp77\_704\_1\_pp\_c\_lag\_all dropped and 1 obs not used

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

sp77\_808\_pp\_c\_lag\_all dropped and 14 obs not used

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

sp77\_901\_1\_pp\_c\_lag\_all dropped and 7 obs not used

note: 9.state != 0 predicts success perfectly

9.state dropped and 8 obs not used

note: 17.state != 0 predicts success perfectly

17.state dropped and 9 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: sp75\_1403\_3\_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\_800\_2\_pp\_c\_lag\_all omitted because of collinearity

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

note: sp77\_1432\_pp\_c\_lag\_all omitted because of collinearity

note: sp77\_314\_pp\_c\_lag\_all omitted because of collinearity

note: sp77\_315\_pp\_c\_lag\_all omitted because of collinearity

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

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

note: sp77\_510\_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 = -1577.0069

Iteration 1: log pseudolikelihood = -1360.1976

Iteration 2: log pseudolikelihood = -1318.2336

Iteration 3: log pseudolikelihood = -1307.2528

Iteration 4: log pseudolikelihood = -1302.7472

Iteration 5: log pseudolikelihood = -1302.0014

Iteration 6: log pseudolikelihood = -1300.3289

Iteration 7: log pseudolikelihood = -1300.2594

Iteration 8: log pseudolikelihood = -1300.2513

Iteration 9: log pseudolikelihood = -1300.2498

Iteration 10: log pseudolikelihood = -1300.2493

Iteration 11: log pseudolikelihood = -1300.2492

Iteration 12: log pseudolikelihood = -1300.2492

Logistic regression Number of obs = 3,148

Wald chi2(292) = .

Log pseudolikelihood = -1300.2492 Prob > chi2 = .

(Std. Err. adjusted for 711 clusters in mineid)

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

| Robust

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

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

sp47\_41\_pp\_c\_lag\_all | .998365 .0011192 -1.46 0.144 .9961738 1.000561

sp47\_42\_pp\_c\_lag\_all | .9950348 .0025821 -1.92 0.055 .9899869 1.000109

sp47\_44\_pp\_c\_lag\_all | 1.002176 .0025154 0.87 0.386 .9972582 1.007118

sp48\_11\_pp\_c\_lag\_all | 1.00046 .0006813 0.68 0.500 .9991254 1.001796

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

sp48\_25\_pp\_c\_lag\_all | .9986349 .0012927 -1.06 0.291 .9961045 1.001172

sp48\_26\_pp\_c\_lag\_all | .9984055 .0011789 -1.35 0.177 .9960976 1.000719

sp48\_27\_pp\_c\_lag\_all | 1.000913 .0011069 0.83 0.409 .9987463 1.003085

sp48\_28\_pp\_c\_lag\_all | .9974301 .0010682 -2.40 0.016 .9953386 .999526

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

sp48\_5\_pp\_c\_lag\_all | 1.004137 .0021755 1.91 0.057 .9998817 1.00841

sp48\_6\_pp\_c\_lag\_all | 1.000725 .0008646 0.84 0.402 .9990316 1.002421

sp48\_7\_pp\_c\_lag\_all | 1.001404 .0008513 1.65 0.099 .9997373 1.003074

sp48\_8\_pp\_c\_lag\_all | .9983317 .0013689 -1.22 0.223 .9956523 1.001018

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

sp72\_503\_pp\_c\_lag\_all | .99913 .0016652 -0.52 0.602 .9958715 1.002399

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

sp72\_620\_pp\_c\_lag\_all | .9989849 .0042651 -0.24 0.812 .9906604 1.007379

sp72\_630\_pp\_c\_lag\_all | 1.000206 .0001276 1.62 0.106 .9999561 1.000456

sp75\_100\_pp\_c\_lag\_all | 1.002388 .0036428 0.66 0.512 .9952734 1.009553

sp75\_1001\_1\_pp\_c\_lag\_all | 1.009292 .0034636 2.70 0.007 1.002527 1.016104

sp75\_1001\_pp\_c\_lag\_all | 1.01993 .0105739 1.90 0.057 .9994143 1.040866

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

sp75\_1100\_2\_pp\_c\_lag\_all | 1.00008 .0001159 0.69 0.488 .9998532 1.000307

sp75\_1101\_20\_pp\_c\_lag\_all | 1.005909 .0045557 1.30 0.193 .9970191 1.014877

sp75\_1102\_pp\_c\_lag\_all | 1.000562 .0005453 1.03 0.302 .9994943 1.001632

sp75\_1103\_4\_pp\_c\_lag\_all | .999743 .0001663 -1.55 0.122 .9994172 1.000069

sp75\_1104\_pp\_c\_lag\_all | .996918 .0011356 -2.71 0.007 .9946949 .9991462

sp75\_1106\_2\_pp\_c\_lag\_all | .9995302 .0009511 -0.49 0.621 .9976678 1.001396

sp75\_1106\_3\_pp\_c\_lag\_all | .9999457 .0002771 -0.20 0.845 .9994027 1.000489

sp75\_1106\_4\_pp\_c\_lag\_all | 1.006321 .0028361 2.24 0.025 1.000778 1.011895

sp75\_1106\_5\_pp\_c\_lag\_all | .9983862 .0005706 -2.83 0.005 .9972685 .9995051

sp75\_1106\_6\_pp\_c\_lag\_all | 1 (omitted)

sp75\_1106\_pp\_c\_lag\_all | 1.004816 .0026658 1.81 0.070 .9996046 1.010054

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

sp75\_1400\_1\_pp\_c\_lag\_all | .9910121 .0079341 -1.13 0.259 .975583 1.006685

sp75\_1400\_2\_pp\_c\_lag\_all | 1.018297 .0082046 2.25 0.024 1.002342 1.034505

sp75\_1400\_3\_pp\_c\_lag\_all | 1.001489 .0020008 0.74 0.456 .9975754 1.005419

sp75\_1400\_4\_pp\_c\_lag\_all | 1.000177 .0075637 0.02 0.981 .9854622 1.015112

sp75\_1400\_pp\_c\_lag\_all | 1.000941 .002852 0.33 0.741 .9953671 1.006547

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

sp75\_1401\_pp\_c\_lag\_all | .9551005 .0152294 -2.88 0.004 .925713 .9854209

sp75\_1403\_10\_pp\_c\_lag\_all | 1.000632 .0005621 1.12 0.261 .9995311 1.001734

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

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

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

sp75\_1403\_5\_pp\_c\_lag\_all | .9998508 .0003414 -0.44 0.662 .9991819 1.00052

sp75\_1403\_6\_pp\_c\_lag\_all | .9995063 .0002695 -1.83 0.067 .9989782 1.000035

sp75\_1403\_7\_pp\_c\_lag\_all | .9988358 .0016326 -0.71 0.476 .9956411 1.002041

sp75\_1403\_8\_pp\_c\_lag\_all | 1.000201 .0002706 0.74 0.457 .9996708 1.000732

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

sp75\_1404\_1\_pp\_c\_lag\_all | .9717897 .0062989 -4.41 0.000 .9595222 .9842141

sp75\_1404\_pp\_c\_lag\_all | .9906787 .005943 -1.56 0.118 .9790988 1.002396

sp75\_1405\_1\_pp\_c\_lag\_all | .9947928 .0028589 -1.82 0.069 .9892051 1.000412

sp75\_1405\_pp\_c\_lag\_all | 1.000661 .0006918 0.96 0.339 .9993057 1.002018

sp75\_1431\_pp\_c\_lag\_all | .9729029 .0328947 -0.81 0.417 .9105202 1.03956

sp75\_1432\_pp\_c\_lag\_all | 1.052747 .0055321 9.78 0.000 1.041959 1.063645

sp75\_1433\_pp\_c\_lag\_all | 1.001979 .0038791 0.51 0.610 .9944047 1.009611

sp75\_1434\_pp\_c\_lag\_all | 1.003545 .0054027 0.66 0.511 .9930115 1.01419

sp75\_1435\_pp\_c\_lag\_all | .9410352 .01726 -3.31 0.001 .907807 .9754796

sp75\_1437\_pp\_c\_lag\_all | .9939045 .013295 -0.46 0.648 .9681854 1.020307

sp75\_150\_pp\_c\_lag\_all | .9979472 .0042693 -0.48 0.631 .9896145 1.00635

sp75\_151\_pp\_c\_lag\_all | 1.023463 .0047306 5.02 0.000 1.014233 1.032777

sp75\_153\_pp\_c\_lag\_all | 1.002392 .0035136 0.68 0.495 .9955293 1.009303

sp75\_156\_pp\_c\_lag\_all | 1.002587 .0062883 0.41 0.680 .9903377 1.014988

sp75\_160\_pp\_c\_lag\_all | .9148532 .0088556 -9.19 0.000 .8976601 .9323755

sp75\_1600\_2\_pp\_c\_lag\_all | .9992579 .000378 -1.96 0.050 .9985173 .999999

sp75\_1712\_10\_pp\_c\_lag\_all | .9922141 .0031915 -2.43 0.015 .9859786 .998489

sp75\_1712\_6\_pp\_c\_lag\_all | 1.001217 .0008609 1.41 0.157 .9995313 1.002906

sp75\_1720\_pp\_c\_lag\_all | .9994968 .000484 -1.04 0.299 .9985486 1.000446

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

sp75\_1725\_pp\_c\_lag\_all | 1.000246 .0000624 3.95 0.000 1.000124 1.000369

sp75\_1726\_pp\_c\_lag\_all | 1.004393 .0017532 2.51 0.012 1.000963 1.007835

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

sp75\_1728\_pp\_c\_lag\_all | .9977132 .0053322 -0.43 0.668 .9873168 1.008219

sp75\_1729\_pp\_c\_lag\_all | 1.013389 .0034015 3.96 0.000 1.006744 1.020077

sp75\_1730\_pp\_c\_lag\_all | 1.011267 .0049894 2.27 0.023 1.001535 1.021093

sp75\_1731\_pp\_c\_lag\_all | 1.000067 .0000585 1.14 0.254 .9999521 1.000181

sp75\_1903\_pp\_c\_lag\_all | .9987553 .0018051 -0.69 0.491 .9952236 1.0023

sp75\_1909\_pp\_c\_lag\_all | 1.000254 .0000956 2.66 0.008 1.000067 1.000441

sp75\_1910\_pp\_c\_lag\_all | 1.000034 .0002529 0.13 0.893 .9995385 1.00053

sp75\_1911\_pp\_c\_lag\_all | 1.000197 .0002853 0.69 0.491 .9996376 1.000756

sp75\_1912\_pp\_c\_lag\_all | 1.006929 .0019889 3.50 0.000 1.003038 1.010834

sp75\_1913\_pp\_c\_lag\_all | 1.000082 .0020835 0.04 0.969 .9960062 1.004173

sp75\_1914\_pp\_c\_lag\_all | .9993758 .0001994 -3.13 0.002 .9989851 .9997668

sp75\_1915\_pp\_c\_lag\_all | 1.001187 .0021777 0.55 0.586 .9969277 1.005464

sp75\_202\_pp\_c\_lag\_all | .9999596 .0000366 -1.11 0.269 .9998879 1.000031

sp75\_208\_pp\_c\_lag\_all | .9999395 .0002277 -0.27 0.791 .9994933 1.000386

sp75\_211\_pp\_c\_lag\_all | 1.000033 .0003097 0.11 0.915 .9994263 1.00064

sp75\_212\_pp\_c\_lag\_all | 1.002504 .0012027 2.08 0.037 1.00015 1.004864

sp75\_214\_pp\_c\_lag\_all | .9989021 .0005916 -1.85 0.064 .9977433 1.000062

sp75\_312\_pp\_c\_lag\_all | .9993451 .0003509 -1.87 0.062 .9986575 1.000033

sp75\_320\_pp\_c\_lag\_all | 1.0001 .0003292 0.30 0.761 .9994553 1.000746

sp75\_324\_pp\_c\_lag\_all | .9969612 .0011157 -2.72 0.007 .9947769 .9991503

sp75\_337\_pp\_c\_lag\_all | .999984 .0005755 -0.03 0.978 .9988567 1.001113

sp75\_340\_pp\_c\_lag\_all | 1.000524 .0003188 1.64 0.100 .999899 1.001149

sp75\_341\_pp\_c\_lag\_all | 1.00263 .0255827 0.10 0.918 .9537219 1.054046

sp75\_342\_pp\_c\_lag\_all | .9999752 .0001113 -0.22 0.824 .999757 1.000193

sp75\_344\_pp\_c\_lag\_all | .9999477 .0028618 -0.02 0.985 .9943544 1.005573

sp75\_352\_pp\_c\_lag\_all | .9986486 .0013051 -1.03 0.301 .9960939 1.00121

sp75\_382\_pp\_c\_lag\_all | .9989467 .0013425 -0.78 0.433 .996319 1.001581

sp75\_503\_pp\_c\_lag\_all | .9999837 .0000371 -0.44 0.660 .999911 1.000056

sp75\_504\_pp\_c\_lag\_all | .9994405 .0016063 -0.35 0.728 .9962972 1.002594

sp75\_505\_pp\_c\_lag\_all | 1.001941 .002313 0.84 0.401 .9974174 1.006484

sp75\_506\_1\_pp\_c\_lag\_all | 1.00486 .0016533 2.95 0.003 1.001625 1.008105

sp75\_506\_pp\_c\_lag\_all | .9976351 .001237 -1.91 0.056 .9952136 1.000062

sp75\_507\_pp\_c\_lag\_all | .9991887 .0007517 -1.08 0.281 .9977164 1.000663

sp75\_511\_1\_pp\_c\_lag\_all | 1.035054 .0133095 2.68 0.007 1.009294 1.061472

sp75\_511\_pp\_c\_lag\_all | .9991921 .0006339 -1.27 0.203 .9979505 1.000435

sp75\_512\_1\_pp\_c\_lag\_all | 1.004459 .0071013 0.63 0.529 .9906369 1.018474

sp75\_512\_2\_pp\_c\_lag\_all | 1.000088 .0003132 0.28 0.778 .9994746 1.000702

sp75\_512\_pp\_c\_lag\_all | .9999862 .000079 -0.17 0.861 .9998315 1.000141

sp75\_513\_1\_pp\_c\_lag\_all | 1.004739 .0029655 1.60 0.109 .9989439 1.010568

sp75\_513\_pp\_c\_lag\_all | .9993837 .0014689 -0.42 0.675 .9965088 1.002267

sp75\_514\_pp\_c\_lag\_all | .9992794 .0002948 -2.44 0.015 .9987017 .9998575

sp75\_515\_pp\_c\_lag\_all | .9995364 .0002365 -1.96 0.050 .9990729 1

sp75\_516\_1\_pp\_c\_lag\_all | 1.000139 .0039284 0.04 0.972 .9924688 1.007868

sp75\_516\_2\_pp\_c\_lag\_all | .9998102 .0006032 -0.31 0.753 .9986287 1.000993

sp75\_516\_pp\_c\_lag\_all | .9996065 .0003089 -1.27 0.203 .9990012 1.000212

sp75\_517\_1\_pp\_c\_lag\_all | .9981327 .0047166 -0.40 0.692 .9889309 1.00742

sp75\_517\_pp\_c\_lag\_all | .9999135 .0000407 -2.13 0.033 .9998337 .9999932

sp75\_518\_1\_pp\_c\_lag\_all | 1.000095 .0003597 0.26 0.791 .9993906 1.0008

sp75\_518\_pp\_c\_lag\_all | .9993182 .000255 -2.67 0.008 .9988185 .9998182

sp75\_519\_pp\_c\_lag\_all | .9585953 .0276352 -1.47 0.142 .9059331 1.014319

sp75\_520\_pp\_c\_lag\_all | .9997664 .000763 -0.31 0.759 .9982719 1.001263

sp75\_523\_1\_pp\_c\_lag\_all | 1.000289 .0004477 0.64 0.519 .9994117 1.001166

sp75\_523\_2\_pp\_c\_lag\_all | .9998498 .0002747 -0.55 0.585 .9993115 1.000388

sp75\_523\_pp\_c\_lag\_all | .9993567 .0003588 -1.79 0.073 .9986537 1.00006

sp75\_600\_1\_pp\_c\_lag\_all | .9994494 .0016363 -0.34 0.737 .9962474 1.002662

sp75\_600\_pp\_c\_lag\_all | .9921755 .0032521 -2.40 0.017 .9858219 .9985701

sp75\_601\_1\_pp\_c\_lag\_all | 1.000524 .0002214 2.37 0.018 1.00009 1.000958

sp75\_601\_2\_pp\_c\_lag\_all | 1.003198 .0030214 1.06 0.289 .9972937 1.009137

sp75\_601\_3\_pp\_c\_lag\_all | .9978353 .0054775 -0.39 0.693 .9871571 1.008629

sp75\_601\_pp\_c\_lag\_all | 1.000017 .0003139 0.05 0.957 .999402 1.000633

sp75\_602\_pp\_c\_lag\_all | .9990545 .0007516 -1.26 0.209 .9975826 1.000529

sp75\_603\_pp\_c\_lag\_all | 1.002147 .00157 1.37 0.171 .9990742 1.005228

sp75\_604\_pp\_c\_lag\_all | .9999799 .0000705 -0.29 0.776 .9998417 1.000118

sp75\_605\_pp\_c\_lag\_all | .9999462 .000297 -0.18 0.856 .9993642 1.000529

sp75\_606\_pp\_c\_lag\_all | 1.000011 .0001537 0.07 0.942 .99971 1.000312

sp75\_607\_pp\_c\_lag\_all | 1.000323 .000726 0.44 0.657 .9989007 1.001747

sp75\_700\_1\_pp\_c\_lag\_all | .9992732 .0023007 -0.32 0.752 .9947741 1.003793

sp75\_700\_pp\_c\_lag\_all | .9999315 .0011754 -0.06 0.954 .9976303 1.002238

sp75\_701\_1\_pp\_c\_lag\_all | 1.002689 .0013281 2.03 0.043 1.000089 1.005295

sp75\_701\_2\_pp\_c\_lag\_all | 1.000512 .00124 0.41 0.679 .9980851 1.002946

sp75\_701\_3\_pp\_c\_lag\_all | .9978858 .0017304 -1.22 0.222 .9945 1.001283

sp75\_701\_4\_pp\_c\_lag\_all | 1.004841 .003382 1.43 0.151 .9982342 1.011491

sp75\_701\_pp\_c\_lag\_all | 1.000505 .0002178 2.32 0.020 1.000078 1.000932

sp75\_702\_1\_pp\_c\_lag\_all | 1.001869 .0028969 0.65 0.518 .9962073 1.007563

sp75\_702\_pp\_c\_lag\_all | 1.008981 .0049196 1.83 0.067 .999385 1.01867

sp75\_703\_1\_pp\_c\_lag\_all | .9953195 .0061331 -0.76 0.446 .9833713 1.007413

sp75\_703\_2\_pp\_c\_lag\_all | .9894285 .0083311 -1.26 0.207 .9732339 1.005893

sp75\_703\_3\_pp\_c\_lag\_all | 1.003225 .0016337 1.98 0.048 1.000028 1.006432

sp75\_703\_4\_pp\_c\_lag\_all | 1 (omitted)

sp75\_703\_pp\_c\_lag\_all | 1.000406 .0004094 0.99 0.321 .999604 1.001209

sp75\_704\_pp\_c\_lag\_all | 1.003053 .0035115 0.87 0.384 .996194 1.009959

sp75\_705\_1\_pp\_c\_lag\_all | .9983338 .0032983 -0.50 0.614 .9918901 1.004819

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

sp75\_705\_8\_pp\_c\_lag\_all | .9698001 .0117737 -2.53 0.012 .9469965 .9931528

sp75\_705\_pp\_c\_lag\_all | .9966377 .0038241 -0.88 0.380 .9891707 1.004161

sp75\_706\_pp\_c\_lag\_all | .9997178 .0011541 -0.24 0.807 .9974583 1.001982

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

sp75\_800\_3\_pp\_c\_lag\_all | 1.001792 .0024458 0.73 0.463 .9970094 1.006597

sp75\_800\_4\_pp\_c\_lag\_all | .9983476 .0017733 -0.93 0.352 .9948781 1.001829

sp75\_800\_pp\_c\_lag\_all | .9995243 .0014264 -0.33 0.739 .9967325 1.002324

sp75\_801\_pp\_c\_lag\_all | 1.000223 .0030902 0.07 0.942 .9941849 1.006298

sp75\_802\_pp\_c\_lag\_all | .9924667 .0024485 -3.07 0.002 .9876794 .9972773

sp75\_803\_2\_pp\_c\_lag\_all | .9944241 .0017996 -3.09 0.002 .9909032 .9979576

sp75\_803\_pp\_c\_lag\_all | 1.003153 .0011918 2.65 0.008 1.00082 1.005492

sp75\_812\_pp\_c\_lag\_all | 1.000381 .0017706 0.21 0.830 .9969163 1.003857

sp75\_814\_pp\_c\_lag\_all | .9896548 .0036832 -2.79 0.005 .982462 .9969001

sp75\_815\_pp\_c\_lag\_all | 1.001269 .0011557 1.10 0.272 .9990061 1.003536

sp75\_816\_pp\_c\_lag\_all | 1.000081 .0004536 0.18 0.859 .999192 1.00097

sp75\_818\_pp\_c\_lag\_all | 1.005777 .0025869 2.24 0.025 1.00072 1.01086

sp75\_820\_pp\_c\_lag\_all | 1.007243 .0026008 2.80 0.005 1.002159 1.012353

sp75\_821\_pp\_c\_lag\_all | 1.010339 .0050446 2.06 0.039 1.0005 1.020275

sp75\_825\_pp\_c\_lag\_all | 1.000458 .0020446 0.22 0.823 .9964588 1.004474

sp75\_827\_pp\_c\_lag\_all | 1.008795 .0049068 1.80 0.072 .9992237 1.018458

sp75\_831\_pp\_c\_lag\_all | .9996989 .0036306 -0.08 0.934 .9926083 1.00684

sp75\_832\_pp\_c\_lag\_all | .9815347 .0062427 -2.93 0.003 .9693751 .9938468

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

sp75\_900\_2\_pp\_c\_lag\_all | .9863294 .0081561 -1.66 0.096 .9704725 1.002445

sp75\_900\_3\_pp\_c\_lag\_all | 1.000704 .0009718 0.72 0.469 .998801 1.00261

sp75\_900\_4\_pp\_c\_lag\_all | 1.001204 .0007797 1.54 0.122 .9996765 1.002733

sp75\_900\_pp\_c\_lag\_all | 1.000091 .0003004 0.30 0.763 .999502 1.000679

sp75\_901\_pp\_c\_lag\_all | 1.000654 .0010479 0.62 0.532 .9986026 1.00271

sp75\_902\_1\_pp\_c\_lag\_all | .985619 .0034318 -4.16 0.000 .9789157 .9923682

sp75\_902\_2\_pp\_c\_lag\_all | 1.005486 .0017791 3.09 0.002 1.002005 1.008979

sp75\_902\_4\_pp\_c\_lag\_all | 1.001766 .0007241 2.44 0.015 1.000348 1.003187

sp75\_902\_pp\_c\_lag\_all | .9994361 .0002124 -2.65 0.008 .99902 .9998524

sp75\_903\_pp\_c\_lag\_all | .9995401 .0005005 -0.92 0.358 .9985597 1.000521

sp75\_904\_pp\_c\_lag\_all | 1.000255 .0001318 1.93 0.053 .9999966 1.000513

sp75\_905\_pp\_c\_lag\_all | .9945065 .0019179 -2.86 0.004 .9907545 .9982727

sp75\_907\_pp\_c\_lag\_all | 1.000996 .0012174 0.82 0.413 .9986125 1.003384

sp77\_103\_pp\_c\_lag\_all | .9986035 .0026243 -0.53 0.595 .9934732 1.00376

sp77\_104\_pp\_c\_lag\_all | 1 (omitted)

sp77\_1103\_pp\_c\_lag\_all | 1.000108 .0003597 0.30 0.763 .9994034 1.000814

sp77\_1104\_pp\_c\_lag\_all | .9998457 .0001174 -1.31 0.189 .9996156 1.000076

sp77\_1106\_pp\_c\_lag\_all | .9867284 .0065047 -2.03 0.043 .9740614 .9995601

sp77\_1111\_pp\_c\_lag\_all | .9984527 .0026425 -0.59 0.558 .9932869 1.003645

sp77\_1112\_pp\_c\_lag\_all | 1.000499 .0022206 0.22 0.822 .9961559 1.00486

sp77\_1403\_pp\_c\_lag\_all | 1.000645 .0038582 0.17 0.867 .9931119 1.008236

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

sp77\_1433\_pp\_c\_lag\_all | .9887147 .0038629 -2.90 0.004 .9811724 .9963149

sp77\_1434\_pp\_c\_lag\_all | 1.000525 .0041517 0.13 0.899 .9924204 1.008695

sp77\_1437\_pp\_c\_lag\_all | 1.001844 .0087568 0.21 0.833 .9848274 1.019155

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

sp77\_1605\_pp\_c\_lag\_all | .9999449 .0001037 -0.53 0.595 .9997417 1.000148

sp77\_1606\_pp\_c\_lag\_all | .9997747 .000112 -2.01 0.044 .9995552 .9999942

sp77\_1710\_pp\_c\_lag\_all | .9993842 .000443 -1.39 0.165 .9985163 1.000253

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

sp77\_1906\_pp\_c\_lag\_all | .9962975 .0063959 -0.58 0.563 .9838404 1.008912

sp77\_1915\_pp\_c\_lag\_all | 1.000604 .0019069 0.32 0.751 .9968738 1.004349

sp77\_1916\_pp\_c\_lag\_all | 1.002608 .0052977 0.49 0.622 .9922778 1.013045

sp77\_200\_pp\_c\_lag\_all | 1.001171 .0008497 1.38 0.168 .9995066 1.002838

sp77\_202\_pp\_c\_lag\_all | .999482 .0004682 -1.11 0.269 .9985648 1.0004

sp77\_203\_pp\_c\_lag\_all | 1.02534 .0137061 1.87 0.061 .9988249 1.052558

sp77\_204\_pp\_c\_lag\_all | 1.00161 .0008647 1.86 0.062 .9999167 1.003306

sp77\_205\_pp\_c\_lag\_all | 1.000369 .0001685 2.19 0.028 1.000039 1.0007

sp77\_206\_pp\_c\_lag\_all | .9994528 .0009535 -0.57 0.566 .9975857 1.001323

sp77\_207\_pp\_c\_lag\_all | .999419 .0004475 -1.30 0.194 .9985423 1.000296

sp77\_208\_pp\_c\_lag\_all | 1.00003 .0002592 0.12 0.907 .9995225 1.000539

sp77\_210\_pp\_c\_lag\_all | 1.002119 .0014975 1.42 0.157 .9991887 1.005059

sp77\_216\_pp\_c\_lag\_all | .9977702 .0019977 -1.11 0.265 .9938624 1.001693

sp77\_305\_pp\_c\_lag\_all | 1 (omitted)

sp77\_309\_pp\_c\_lag\_all | 1 (omitted)

sp77\_314\_pp\_c\_lag\_all | 1 (omitted)

sp77\_315\_pp\_c\_lag\_all | 1 (omitted)

sp77\_400\_pp\_c\_lag\_all | 1.000021 .0001737 0.12 0.904 .9996807 1.000362

sp77\_401\_pp\_c\_lag\_all | 1.000311 .0009693 0.32 0.748 .9984131 1.002213

sp77\_402\_pp\_c\_lag\_all | .9992539 .0008159 -0.91 0.361 .997656 1.000854

sp77\_403\_1\_pp\_c\_lag\_all | 1.003217 .00204 1.58 0.114 .9992264 1.007223

sp77\_403\_2\_pp\_c\_lag\_all | 1 (omitted)

sp77\_403\_pp\_c\_lag\_all | .9997575 .0031232 -0.08 0.938 .9936548 1.005898

sp77\_404\_pp\_c\_lag\_all | 1.000149 .0001078 1.38 0.168 .9999374 1.00036

sp77\_405\_pp\_c\_lag\_all | .999799 .0020768 -0.10 0.923 .9957368 1.003878

sp77\_408\_pp\_c\_lag\_all | 1.002078 .0015467 1.35 0.179 .9990513 1.005114

sp77\_409\_pp\_c\_lag\_all | .9994228 .0046133 -0.13 0.900 .9904216 1.008506

sp77\_410\_pp\_c\_lag\_all | 1.000587 .0002443 2.41 0.016 1.000109 1.001066

sp77\_411\_pp\_c\_lag\_all | .9847555 .0028923 -5.23 0.000 .979103 .9904407

sp77\_412\_pp\_c\_lag\_all | 1.000216 .0020271 0.11 0.915 .9962511 1.004197

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

sp77\_500\_pp\_c\_lag\_all | .9985314 .0053103 -0.28 0.782 .9881775 1.008994

sp77\_501\_pp\_c\_lag\_all | .9996972 .0018021 -0.17 0.867 .9961713 1.003235

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

sp77\_502\_2\_pp\_c\_lag\_all | 1.000624 .0009826 0.64 0.525 .9987001 1.002552

sp77\_502\_pp\_c\_lag\_all | .9998907 .0001444 -0.76 0.449 .9996077 1.000174

sp77\_503\_1\_pp\_c\_lag\_all | .9997119 .0022232 -0.13 0.897 .9953639 1.004079

sp77\_503\_pp\_c\_lag\_all | .9986704 .0018403 -0.72 0.470 .9950699 1.002284

sp77\_504\_pp\_c\_lag\_all | .998645 .0006431 -2.11 0.035 .9973854 .9999062

sp77\_505\_pp\_c\_lag\_all | .9994642 .0002744 -1.95 0.051 .9989266 1.000002

sp77\_506\_1\_pp\_c\_lag\_all | 1.000343 .0008281 0.41 0.679 .9987214 1.001968

sp77\_506\_pp\_c\_lag\_all | .9996974 .0006269 -0.48 0.629 .9984694 1.000927

sp77\_507\_pp\_c\_lag\_all | 1.001276 .0014729 0.87 0.386 .9983928 1.004167

sp77\_508\_1\_pp\_c\_lag\_all | 1.00241 .0015907 1.52 0.129 .999297 1.005532

sp77\_508\_pp\_c\_lag\_all | .9995635 .0013421 -0.33 0.745 .9969365 1.002197

sp77\_509\_pp\_c\_lag\_all | 1.001232 .0008124 1.52 0.129 .9996413 1.002826

sp77\_510\_pp\_c\_lag\_all | 1 (omitted)

sp77\_511\_pp\_c\_lag\_all | 1.00013 .003103 0.04 0.967 .9940667 1.00623

sp77\_512\_pp\_c\_lag\_all | 1.000118 .0003292 0.36 0.719 .9994733 1.000764

sp77\_513\_pp\_c\_lag\_all | 1.000155 .0003914 0.40 0.692 .999388 1.000922

sp77\_514\_pp\_c\_lag\_all | 1.017338 .0081998 2.13 0.033 1.001393 1.033537

sp77\_515\_pp\_c\_lag\_all | 1.002222 .0058567 0.38 0.704 .9908083 1.013767

sp77\_516\_pp\_c\_lag\_all | .9999781 .0002117 -0.10 0.917 .9995632 1.000393

sp77\_600\_pp\_c\_lag\_all | .9968027 .0019952 -1.60 0.110 .9928998 1.000721

sp77\_601\_pp\_c\_lag\_all | 1.007675 .004321 1.78 0.075 .9992411 1.016179

sp77\_602\_pp\_c\_lag\_all | 1.004934 .0072639 0.68 0.496 .990797 1.019272

sp77\_603\_pp\_c\_lag\_all | 1.005352 .0039841 1.35 0.178 .9975734 1.013191

sp77\_604\_pp\_c\_lag\_all | 1.000598 .0013257 0.45 0.652 .9980035 1.0032

sp77\_605\_pp\_c\_lag\_all | .9964279 .0032153 -1.11 0.267 .990146 1.00275

sp77\_606\_1\_pp\_c\_lag\_all | 1 (omitted)

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

sp77\_700\_1\_pp\_c\_lag\_all | .9850853 .0066923 -2.21 0.027 .9720557 .9982896

sp77\_700\_pp\_c\_lag\_all | 1.000369 .0020375 0.18 0.856 .996384 1.004371

sp77\_701\_1\_pp\_c\_lag\_all | 1.002094 .0016925 1.24 0.216 .9987817 1.005416

sp77\_701\_2\_pp\_c\_lag\_all | .9984016 .0007776 -2.05 0.040 .9968787 .9999268

sp77\_701\_pp\_c\_lag\_all | .9992181 .0004056 -1.93 0.054 .9984234 1.000013

sp75\_804\_pp\_c\_lag\_all | 1.001456 .001746 0.83 0.404 .9980398 1.004884

sp75\_805\_pp\_c\_lag\_all | 1.000335 .0009681 0.35 0.729 .9984398 1.002235

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

sp75\_807\_pp\_c\_lag\_all | 1.000301 .0001786 1.68 0.092 .9999506 1.000651

sp75\_808\_pp\_c\_lag\_all | 1.001029 .0016139 0.64 0.524 .9978708 1.004197

sp75\_809\_pp\_c\_lag\_all | 1.000664 .0006482 1.02 0.306 .9993942 1.001935

sp75\_810\_pp\_c\_lag\_all | .9989691 .0006296 -1.64 0.102 .9977359 1.000204

sp75\_811\_pp\_c\_lag\_all | 1.002019 .0008171 2.47 0.013 1.000419 1.003622

sp77\_703\_pp\_c\_lag\_all | .9714665 .0125938 -2.23 0.026 .947094 .9964662

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

sp77\_704\_8\_pp\_c\_lag\_all | .9976827 .0029799 -0.78 0.437 .9918592 1.00354

sp77\_704\_9\_pp\_c\_lag\_all | .9607463 .0199934 -1.92 0.054 .9223482 1.000743

sp77\_704\_pp\_c\_lag\_all | 1.003002 .0014125 2.13 0.033 1.000238 1.005775

sp77\_705\_pp\_c\_lag\_all | .9992255 .0010911 -0.71 0.478 .9970893 1.001366

sp77\_800\_1\_pp\_c\_lag\_all | 1.002573 .0029554 0.87 0.383 .9967973 1.008382

sp77\_800\_2\_pp\_c\_lag\_all | 1.000274 .0016218 0.17 0.866 .9971004 1.003458

sp77\_800\_pp\_c\_lag\_all | .9959399 .0018313 -2.21 0.027 .992357 .9995357

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

sp77\_802\_pp\_c\_lag\_all | 1.000938 .0022815 0.41 0.681 .9964763 1.00542

sp77\_803\_pp\_c\_lag\_all | 1.001849 .0028716 0.64 0.519 .9962368 1.007493

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

sp77\_805\_pp\_c\_lag\_all | .9907138 .0067455 -1.37 0.171 .9775806 1.004023

sp77\_807\_1\_pp\_c\_lag\_all | .9946172 .0045092 -1.19 0.234 .9858184 1.003495

sp77\_807\_2\_pp\_c\_lag\_all | 1.006016 .0024339 2.48 0.013 1.001257 1.010798

sp77\_807\_3\_pp\_c\_lag\_all | 1.003351 .0030675 1.09 0.274 .9973568 1.009381

sp77\_807\_pp\_c\_lag\_all | 1.001713 .0017773 0.96 0.335 .9982358 1.005203

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

sp77\_809\_pp\_c\_lag\_all | .9987573 .0008326 -1.49 0.136 .9971267 1.000391

sp77\_810\_pp\_c\_lag\_all | 1.004754 .0019775 2.41 0.016 1.000886 1.008638

sp77\_900\_1\_pp\_c\_lag\_all | 1.001127 .0044117 0.26 0.798 .9925179 1.009812

sp77\_900\_2\_pp\_c\_lag\_all | 1.000151 .0015527 0.10 0.923 .9971121 1.003199

sp77\_900\_pp\_c\_lag\_all | 1.002406 .00237 1.02 0.309 .9977719 1.007062

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

sp77\_901\_pp\_c\_lag\_all | 1.008254 .0043852 1.89 0.059 .9996953 1.016885

sp77\_902\_pp\_c\_lag\_all | .9989453 .0021626 -0.49 0.626 .9947156 1.003193

sp77\_903\_pp\_c\_lag\_all | .9989136 .0020673 -0.53 0.599 .99487 1.002974

sp77\_904\_pp\_c\_lag\_all | .9989611 .0005964 -1.74 0.082 .9977929 1.000131

mine\_time | 1.005283 .0198319 0.27 0.789 .9671554 1.044914

onsite\_insp\_hours | 1.001325 .0002445 5.42 0.000 1.000846 1.001805

|

state |

1 | 1.487633 .9332022 0.63 0.527 .4350425 5.086982

2 | 4.599161 1.632933 4.30 0.000 2.293292 9.223545

3 | 2.141805 1.683609 0.97 0.333 .458855 9.997335

4 | 3.607141 1.739626 2.66 0.008 1.40169 9.282701

5 | .7832419 .3634144 -0.53 0.599 .3154635 1.944656

6 | .8305567 .1484053 -1.04 0.299 .5851607 1.178863

7 | .9516973 .7477347 -0.06 0.950 .2040432 4.438902

8 | .0202293 .0153675 -5.13 0.000 .0045641 .089662

9 | 1 (empty)

10 | .2526793 .1420125 -2.45 0.014 .0839792 .7602695

11 | 3.534218 3.713853 1.20 0.230 .4506374 27.71783

12 | .8817439 .2663588 -0.42 0.677 .4877643 1.593951

13 | 2.08404 1.677352 0.91 0.362 .4303396 10.09255

14 | 1.231238 .5779652 0.44 0.658 .4906512 3.089664

15 | .6372728 .1309822 -2.19 0.028 .4259643 .9534052

17 | 1 (empty)

|

time |

2007 | 1.173909 .2242503 0.84 0.401 .807292 1.707019

2009 | .4369237 .083749 -4.32 0.000 .3000877 .636155

2010 | .6618682 .139054 -1.96 0.049 .43847 .9990867

2011 | .8236881 .1583576 -1.01 0.313 .5650874 1.200632

2012 | .7188675 .1619604 -1.47 0.143 .4622465 1.117954

2013 | .4757851 .1149498 -3.07 0.002 .2963195 .7639438

2014 | .3674626 .0949349 -3.88 0.000 .221464 .6097099

2015 | .4916797 .124884 -2.80 0.005 .2988695 .8088779

|

\_cons | 9.05e-06 1.86e-06 -56.62 0.000 6.06e-06 .0000135

lnhours | 1 (offset)

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

Note: 2 failures and 45 successes completely determined.

(est1 stored)

**. lfit**

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

number of observations = 3148

number of covariate patterns = 3148

Pearson chi2(2848) = 2977.84

Prob > chi2 = 0.0442

**. linktest**

Iteration 0: log likelihood = -2178.1604

Iteration 1: log likelihood = -1328.1921

Iteration 2: log likelihood = -1300.5647

Iteration 3: log likelihood = -1299.4644

Iteration 4: log likelihood = -1299.2792

Iteration 5: log likelihood = -1299.2105

Iteration 6: log likelihood = -1299.145

Iteration 7: log likelihood = -1299.1417

Iteration 8: log likelihood = -1299.1417

Logistic regression Number of obs = 3,148

LR chi2(2) = 1758.04

Prob > chi2 = 0.0000

Log likelihood = -1299.1417 Pseudo R2 = 0.4036

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

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

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

\_hat | 1.052107 .0405385 25.95 0.000 .972653 1.131561

\_hatsq | -.014929 .0190135 -0.79 0.432 -.0521948 .0223369

\_cons | .0254047 .0557657 0.46 0.649 -.0838941 .1347035

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

Note: 3 failures and 13 successes completely determined.

**. estat classification**

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 1311 304 | 1615

- | 341 1192 | 1533

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

Total | 1652 1496 | 3148

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

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

Sensitivity Pr( +| D) 79.36%

Specificity Pr( -|~D) 79.68%

Positive predictive value Pr( D| +) 81.18%

Negative predictive value Pr(~D| -) 77.76%

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

False + rate for true ~D Pr( +|~D) 20.32%

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

False + rate for classified + Pr(~D| +) 18.82%

False - rate for classified - Pr( D| -) 22.24%

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

Correctly classified 79.51%

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

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

Variable | Obs Mean Std. Dev. Min Max

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

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

spbpp4\_yhat | 5,949 .493972 .3165925 2.45e-11 1