. // Model SP.B.PP.2

**. eststo: logit MR\_indicator `subpart\_penpoints\_lag\_1\_vars' `covariates' ib(freq).state ib(freq).time if sample\_pp == 1, vce(cl mineid) offset(lnhours) iter(50) or**

note: sp48\_24\_pp\_1lag != 0 predicts failure perfectly

sp48\_24\_pp\_1lag dropped and 1 obs not used

note: sp48\_4\_pp\_1lag != 0 predicts success perfectly

sp48\_4\_pp\_1lag dropped and 1 obs not used

note: sp71\_701\_pp\_1lag != 0 predicts success perfectly

sp71\_701\_pp\_1lag dropped and 1 obs not used

note: sp72\_610\_pp\_1lag != 0 predicts success perfectly

sp72\_610\_pp\_1lag dropped and 2 obs not used

note: sp75\_1001\_1\_pp\_1lag != 0 predicts success perfectly

sp75\_1001\_1\_pp\_1lag dropped and 4 obs not used

note: sp75\_1003\_1\_pp\_1lag != 0 predicts success perfectly

sp75\_1003\_1\_pp\_1lag dropped and 6 obs not used

note: sp75\_1400\_1\_pp\_1lag != 0 predicts success perfectly

sp75\_1400\_1\_pp\_1lag dropped and 5 obs not used

note: sp75\_1401\_1\_pp\_1lag != 0 predicts success perfectly

sp75\_1401\_1\_pp\_1lag dropped and 1 obs not used

note: sp75\_1403\_11\_pp\_1lag != 0 predicts success perfectly

sp75\_1403\_11\_pp\_1lag dropped and 3 obs not used

note: sp75\_1403\_3\_pp\_1lag != 0 predicts success perfectly

sp75\_1403\_3\_pp\_1lag dropped and 2 obs not used

note: sp75\_1403\_9\_pp\_1lag != 0 predicts success perfectly

sp75\_1403\_9\_pp\_1lag dropped and 11 obs not used

note: sp75\_1404\_1\_pp\_1lag != 0 predicts success perfectly

sp75\_1404\_1\_pp\_1lag dropped and 2 obs not used

note: sp75\_1405\_1\_pp\_1lag != 0 predicts success perfectly

sp75\_1405\_1\_pp\_1lag dropped and 3 obs not used

note: sp75\_1437\_pp\_1lag != 0 predicts success perfectly

sp75\_1437\_pp\_1lag dropped and 4 obs not used

note: sp75\_150\_pp\_1lag != 0 predicts success perfectly

sp75\_150\_pp\_1lag dropped and 5 obs not used

note: sp75\_153\_pp\_1lag != 0 predicts success perfectly

sp75\_153\_pp\_1lag dropped and 4 obs not used

note: sp75\_156\_pp\_1lag != 0 predicts success perfectly

sp75\_156\_pp\_1lag dropped and 5 obs not used

note: sp75\_1727\_pp\_1lag != 0 predicts failure perfectly

sp75\_1727\_pp\_1lag dropped and 1 obs not used

note: sp75\_519\_pp\_1lag != 0 predicts success perfectly

sp75\_519\_pp\_1lag dropped and 1 obs not used

note: sp75\_600\_1\_pp\_1lag != 0 predicts success perfectly

sp75\_600\_1\_pp\_1lag dropped and 6 obs not used

note: sp75\_702\_1\_pp\_1lag != 0 predicts success perfectly

sp75\_702\_1\_pp\_1lag dropped and 2 obs not used

note: sp75\_703\_1\_pp\_1lag != 0 predicts success perfectly

sp75\_703\_1\_pp\_1lag dropped and 3 obs not used

note: sp75\_703\_4\_pp\_1lag != 0 predicts failure perfectly

sp75\_703\_4\_pp\_1lag dropped and 1 obs not used

note: sp75\_705\_1\_pp\_1lag != 0 predicts success perfectly

sp75\_705\_1\_pp\_1lag dropped and 10 obs not used

note: sp75\_705\_3\_pp\_1lag != 0 predicts success perfectly

sp75\_705\_3\_pp\_1lag dropped and 1 obs not used

note: sp75\_705\_pp\_1lag != 0 predicts success perfectly

sp75\_705\_pp\_1lag dropped and 4 obs not used

note: sp75\_803\_2\_pp\_1lag != 0 predicts success perfectly

sp75\_803\_2\_pp\_1lag dropped and 3 obs not used

note: sp75\_814\_pp\_1lag != 0 predicts success perfectly

sp75\_814\_pp\_1lag dropped and 8 obs not used

note: sp75\_834\_pp\_1lag != 0 predicts failure perfectly

sp75\_834\_pp\_1lag dropped and 1 obs not used

note: sp77\_103\_pp\_1lag != 0 predicts success perfectly

sp77\_103\_pp\_1lag dropped and 1 obs not used

note: sp77\_104\_pp\_1lag != 0 predicts success perfectly

sp77\_104\_pp\_1lag dropped and 2 obs not used

note: sp77\_1432\_pp\_1lag != 0 predicts success perfectly

sp77\_1432\_pp\_1lag dropped and 1 obs not used

note: sp77\_1434\_pp\_1lag != 0 predicts success perfectly

sp77\_1434\_pp\_1lag dropped and 9 obs not used

note: sp77\_1438\_pp\_1lag != 0 predicts success perfectly

sp77\_1438\_pp\_1lag dropped and 1 obs not used

note: sp77\_1802\_pp\_1lag != 0 predicts failure perfectly

sp77\_1802\_pp\_1lag dropped and 1 obs not used

note: sp75\_341\_pp\_1lag != 0 predicts success perfectly

sp75\_341\_pp\_1lag dropped and 1 obs not used

note: sp77\_1906\_pp\_1lag != 0 predicts success perfectly

sp77\_1906\_pp\_1lag dropped and 5 obs not used

note: sp77\_1916\_pp\_1lag != 0 predicts success perfectly

sp77\_1916\_pp\_1lag dropped and 3 obs not used

note: sp77\_216\_pp\_1lag != 0 predicts success perfectly

sp77\_216\_pp\_1lag dropped and 47 obs not used

note: sp77\_409\_pp\_1lag != 0 predicts success perfectly

sp77\_409\_pp\_1lag dropped and 1 obs not used

note: sp77\_500\_pp\_1lag != 0 predicts success perfectly

sp77\_500\_pp\_1lag dropped and 2 obs not used

note: sp77\_510\_pp\_1lag != 0 predicts failure perfectly

sp77\_510\_pp\_1lag dropped and 1 obs not used

note: sp77\_606\_1\_pp\_1lag != 0 predicts success perfectly

sp77\_606\_1\_pp\_1lag dropped and 1 obs not used

note: sp77\_703\_pp\_1lag != 0 predicts success perfectly

sp77\_703\_pp\_1lag dropped and 1 obs not used

note: sp77\_704\_1\_pp\_1lag != 0 predicts success perfectly

sp77\_704\_1\_pp\_1lag dropped and 1 obs not used

note: sp77\_704\_9\_pp\_1lag != 0 predicts failure perfectly

sp77\_704\_9\_pp\_1lag dropped and 1 obs not used

note: sp77\_801\_pp\_1lag != 0 predicts failure perfectly

sp77\_801\_pp\_1lag dropped and 1 obs not used

note: sp77\_802\_pp\_1lag != 0 predicts failure perfectly

sp77\_802\_pp\_1lag dropped and 3 obs not used

note: sp77\_807\_3\_pp\_1lag != 0 predicts success perfectly

sp77\_807\_3\_pp\_1lag dropped and 3 obs not used

note: sp77\_808\_pp\_1lag != 0 predicts success perfectly

sp77\_808\_pp\_1lag dropped and 2 obs not used

note: sp77\_901\_1\_pp\_1lag != 0 predicts success perfectly

sp77\_901\_1\_pp\_1lag dropped and 1 obs not used

note: sp77\_902\_2\_pp\_1lag != 0 predicts success perfectly

sp77\_902\_2\_pp\_1lag dropped and 1 obs not used

note: 9.state != 0 predicts success perfectly

9.state dropped and 7 obs not used

note: 17.state != 0 predicts success perfectly

17.state dropped and 8 obs not used

note: sp75\_1001\_pp\_1lag omitted because of collinearity

note: sp75\_1106\_6\_pp\_1lag omitted because of collinearity

note: sp75\_1403\_4\_pp\_1lag omitted because of collinearity

note: sp75\_1431\_pp\_1lag omitted because of collinearity

note: sp75\_511\_1\_pp\_1lag omitted because of collinearity

note: sp75\_800\_2\_pp\_1lag omitted because of collinearity

note: sp75\_806\_pp\_1lag omitted because of collinearity

note: sp77\_305\_pp\_1lag omitted because of collinearity

note: sp77\_309\_pp\_1lag omitted because of collinearity

note: sp77\_314\_pp\_1lag omitted because of collinearity

note: sp77\_315\_pp\_1lag omitted because of collinearity

note: sp77\_403\_2\_pp\_1lag omitted because of collinearity

note: sp77\_413\_pp\_1lag omitted because of collinearity

note: sp77\_606\_pp\_1lag omitted because of collinearity

note: sp77\_804\_pp\_1lag omitted because of collinearity

Iteration 0: log pseudolikelihood = -1553.6961

Iteration 1: log pseudolikelihood = -1372.0487

Iteration 2: log pseudolikelihood = -1358.4563

Iteration 3: log pseudolikelihood = -1352.0128

Iteration 4: log pseudolikelihood = -1350.8043

Iteration 5: log pseudolikelihood = -1349.9122

Iteration 6: log pseudolikelihood = -1349.5481

Iteration 7: log pseudolikelihood = -1349.5144

Iteration 8: log pseudolikelihood = -1349.5144

Logistic regression Number of obs = 3,127

Wald chi2(272) = .

Log pseudolikelihood = -1349.5144 Prob > chi2 = .

(Std. Err. adjusted for 722 clusters in mineid)

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

| Robust

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

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

sp47\_41\_pp\_1lag | .9900228 .0035257 -2.82 0.005 .9831367 .9969571

sp47\_42\_pp\_1lag | .9861179 .0081954 -1.68 0.093 .9701854 1.002312

sp47\_44\_pp\_1lag | 1.021547 .0092407 2.36 0.018 1.003595 1.03982

sp48\_11\_pp\_1lag | 1.00911 .0048306 1.89 0.058 .999687 1.018623

sp48\_24\_pp\_1lag | 1 (omitted)

sp48\_25\_pp\_1lag | .9927608 .0060052 -1.20 0.230 .9810603 1.004601

sp48\_26\_pp\_1lag | 1.003755 .0030116 1.25 0.212 .9978699 1.009675

sp48\_27\_pp\_1lag | .9994796 .0042162 -0.12 0.902 .99125 1.007777

sp48\_28\_pp\_1lag | .9908165 .0073066 -1.25 0.211 .9765989 1.005241

sp48\_4\_pp\_1lag | 1 (omitted)

sp48\_5\_pp\_1lag | 1.003094 .0072731 0.43 0.670 .9889401 1.017451

sp48\_6\_pp\_1lag | 1.00029 .0026813 0.11 0.914 .9950482 1.005559

sp48\_7\_pp\_1lag | 1.000415 .0028476 0.15 0.884 .9948489 1.006011

sp48\_8\_pp\_1lag | .9980627 .0051742 -0.37 0.708 .9879728 1.008256

sp71\_701\_pp\_1lag | 1 (omitted)

sp72\_503\_pp\_1lag | .9953607 .0052361 -0.88 0.377 .9851508 1.005676

sp72\_610\_pp\_1lag | 1 (omitted)

sp72\_620\_pp\_1lag | 1.05606 .0201516 2.86 0.004 1.017293 1.096304

sp72\_630\_pp\_1lag | 1.000257 .0005206 0.49 0.622 .9992368 1.001277

sp75\_100\_pp\_1lag | 1.004937 .0135663 0.36 0.715 .978696 1.031881

sp75\_1001\_1\_pp\_1lag | 1 (omitted)

sp75\_1001\_pp\_1lag | 1 (omitted)

sp75\_1003\_1\_pp\_1lag | 1 (omitted)

sp75\_1100\_2\_pp\_1lag | 1.000582 .000595 0.98 0.328 .9994161 1.001748

sp75\_1101\_20\_pp\_1lag | 1.027494 .0135497 2.06 0.040 1.001277 1.054397

sp75\_1102\_pp\_1lag | 1.0002 .0023641 0.08 0.933 .995577 1.004844

sp75\_1103\_4\_pp\_1lag | 1.000659 .000772 0.85 0.393 .9991474 1.002174

sp75\_1104\_pp\_1lag | .9966069 .0027704 -1.22 0.221 .9911916 1.002052

sp75\_1106\_2\_pp\_1lag | 1.003355 .0040861 0.82 0.411 .9953777 1.011395

sp75\_1106\_3\_pp\_1lag | 1.00069 .0011952 0.58 0.564 .9983501 1.003035

sp75\_1106\_4\_pp\_1lag | .9909066 .0066382 -1.36 0.173 .977981 1.004003

sp75\_1106\_5\_pp\_1lag | .9989334 .0030827 -0.35 0.729 .9929097 1.004994

sp75\_1106\_6\_pp\_1lag | 1 (omitted)

sp75\_1106\_pp\_1lag | .9965391 .007364 -0.47 0.639 .98221 1.011077

sp75\_1107\_14\_pp\_1lag | .983093 .0208232 -0.81 0.421 .9431159 1.024765

sp75\_1400\_1\_pp\_1lag | 1 (omitted)

sp75\_1400\_2\_pp\_1lag | .9970848 .0141596 -0.21 0.837 .9697151 1.025227

sp75\_1400\_3\_pp\_1lag | 1.001896 .0044785 0.42 0.672 .9931568 1.010712

sp75\_1400\_4\_pp\_1lag | .9939227 .009917 -0.61 0.541 .9746745 1.013551

sp75\_1400\_pp\_1lag | 1.007416 .008951 0.83 0.406 .9900241 1.025113

sp75\_1401\_1\_pp\_1lag | 1 (omitted)

sp75\_1401\_pp\_1lag | 1.005443 .0132588 0.41 0.681 .9797895 1.031769

sp75\_1403\_10\_pp\_1lag | 1.002749 .0020058 1.37 0.170 .9988256 1.006688

sp75\_1403\_11\_pp\_1lag | 1 (omitted)

sp75\_1403\_3\_pp\_1lag | 1 (omitted)

sp75\_1403\_4\_pp\_1lag | 1 (omitted)

sp75\_1403\_5\_pp\_1lag | .9985598 .0017296 -0.83 0.405 .9951756 1.001956

sp75\_1403\_6\_pp\_1lag | .9984045 .0011743 -1.36 0.175 .9961054 1.000709

sp75\_1403\_7\_pp\_1lag | 1.000313 .0052628 0.06 0.953 .9900508 1.010681

sp75\_1403\_8\_pp\_1lag | 1.002642 .0016542 1.60 0.110 .9994048 1.005889

sp75\_1403\_9\_pp\_1lag | 1 (omitted)

sp75\_1404\_1\_pp\_1lag | 1 (omitted)

sp75\_1404\_pp\_1lag | .9997821 .0216652 -0.01 0.992 .9582081 1.04316

sp75\_1405\_1\_pp\_1lag | 1 (omitted)

sp75\_1405\_pp\_1lag | 1.001668 .0022189 0.75 0.452 .9973287 1.006027

sp75\_1431\_pp\_1lag | 1 (omitted)

sp75\_1432\_pp\_1lag | 1.027233 .0126925 2.17 0.030 1.002655 1.052414

sp75\_1433\_pp\_1lag | 1.000567 .0080524 0.07 0.944 .9849088 1.016475

sp75\_1434\_pp\_1lag | .988198 .0208028 -0.56 0.573 .948255 1.029824

sp75\_1435\_pp\_1lag | .9786903 .0139324 -1.51 0.130 .9517608 1.006382

sp75\_1437\_pp\_1lag | 1 (omitted)

sp75\_150\_pp\_1lag | 1 (omitted)

sp75\_151\_pp\_1lag | .9762974 .0174926 -1.34 0.181 .9426075 1.011192

sp75\_153\_pp\_1lag | 1 (omitted)

sp75\_156\_pp\_1lag | 1 (omitted)

sp75\_160\_pp\_1lag | 1.00039 .0190158 0.02 0.984 .9638053 1.038363

sp75\_1600\_2\_pp\_1lag | .9971459 .0013501 -2.11 0.035 .9945032 .9997957

sp75\_1712\_10\_pp\_1lag | 1.006646 .0106969 0.62 0.533 .985897 1.027831

sp75\_1712\_6\_pp\_1lag | .9996853 .0034873 -0.09 0.928 .9928736 1.006544

sp75\_1720\_pp\_1lag | 1.000342 .0017564 0.19 0.846 .9969052 1.00379

sp75\_1721\_pp\_1lag | 1.000921 .0079063 0.12 0.907 .9855444 1.016538

sp75\_1725\_pp\_1lag | 1.000487 .0003108 1.57 0.117 .9998781 1.001096

sp75\_1726\_pp\_1lag | 1.011265 .0071965 1.57 0.115 .9972586 1.025469

sp75\_1727\_pp\_1lag | 1 (omitted)

sp75\_1728\_pp\_1lag | 1.003125 .0144524 0.22 0.829 .9751947 1.031855

sp75\_1729\_pp\_1lag | 1.015458 .0108175 1.44 0.150 .9944759 1.036883

sp75\_1730\_pp\_1lag | 1.00779 .007758 1.01 0.313 .9926984 1.02311

sp75\_1731\_pp\_1lag | .9995225 .0001932 -2.47 0.013 .9991439 .9999012

sp75\_1903\_pp\_1lag | 1.006807 .0122061 0.56 0.576 .9831658 1.031017

sp75\_1909\_pp\_1lag | .9999711 .0006114 -0.05 0.962 .9987735 1.00117

sp75\_1910\_pp\_1lag | 1.000048 .0013382 0.04 0.972 .9974281 1.002674

sp75\_1911\_pp\_1lag | 1.001762 .0011794 1.50 0.135 .9994534 1.004077

sp75\_1912\_pp\_1lag | 1.002694 .0091617 0.29 0.768 .9848976 1.020813

sp75\_1913\_pp\_1lag | .9919337 .0065853 -1.22 0.222 .9791103 1.004925

sp75\_1914\_pp\_1lag | 1.000549 .0008991 0.61 0.542 .9987879 1.002312

sp75\_1915\_pp\_1lag | 1.001892 .0083034 0.23 0.820 .9857486 1.018299

sp75\_202\_pp\_1lag | 1.00031 .0001596 1.94 0.052 .9999973 1.000623

sp75\_208\_pp\_1lag | .9984533 .0011534 -1.34 0.180 .9961953 1.000716

sp75\_211\_pp\_1lag | .9999057 .0010826 -0.09 0.931 .997786 1.00203

sp75\_212\_pp\_1lag | .9968552 .0032908 -0.95 0.340 .9904261 1.003326

sp75\_214\_pp\_1lag | 1.003137 .0022537 1.39 0.163 .9987293 1.007564

sp75\_312\_pp\_1lag | .999614 .0014893 -0.26 0.796 .9966993 1.002537

sp75\_320\_pp\_1lag | .9982446 .0010569 -1.66 0.097 .9961753 1.000318

sp75\_324\_pp\_1lag | .9999987 .0043357 -0.00 1.000 .9915368 1.008533

sp75\_337\_pp\_1lag | .9987524 .0021723 -0.57 0.566 .9945037 1.003019

sp75\_340\_pp\_1lag | .9993358 .0008652 -0.77 0.443 .9976415 1.001033

sp75\_341\_pp\_1lag | 1 (omitted)

sp75\_342\_pp\_1lag | .9999585 .000427 -0.10 0.923 .9991219 1.000796

sp75\_344\_pp\_1lag | .9909241 .0088346 -1.02 0.306 .973759 1.008392

sp75\_352\_pp\_1lag | 1.000027 .005421 0.00 0.996 .9894581 1.010709

sp75\_382\_pp\_1lag | 1.0004 .005402 0.07 0.941 .989868 1.011044

sp75\_503\_pp\_1lag | 1.000262 .0002055 1.28 0.202 .9998596 1.000665

sp75\_504\_pp\_1lag | .9946953 .0054757 -0.97 0.334 .9840207 1.005486

sp75\_505\_pp\_1lag | 1.013649 .0072591 1.89 0.058 .999521 1.027977

sp75\_506\_1\_pp\_1lag | 1.010467 .006804 1.55 0.122 .9972186 1.023891

sp75\_506\_pp\_1lag | 1.001886 .004696 0.40 0.688 .9927243 1.011133

sp75\_507\_pp\_1lag | 1.001852 .0025312 0.73 0.464 .9969032 1.006825

sp75\_511\_1\_pp\_1lag | 1 (omitted)

sp75\_511\_pp\_1lag | .9963644 .0024725 -1.47 0.142 .9915301 1.001222

sp75\_512\_1\_pp\_1lag | .9979344 .0281629 -0.07 0.942 .944235 1.054688

sp75\_512\_2\_pp\_1lag | 1.002121 .0011681 1.82 0.069 .9998342 1.004413

sp75\_512\_pp\_1lag | .9999738 .0002633 -0.10 0.921 .9994579 1.00049

sp75\_513\_1\_pp\_1lag | 1.015774 .0098592 1.61 0.107 .9966325 1.035282

sp75\_513\_pp\_1lag | .9980315 .0039509 -0.50 0.619 .9903179 1.005805

sp75\_514\_pp\_1lag | 1.000264 .0011006 0.24 0.810 .9981097 1.002424

sp75\_515\_pp\_1lag | .9984828 .0007078 -2.14 0.032 .9970965 .999871

sp75\_516\_1\_pp\_1lag | .995502 .0154459 -0.29 0.771 .9656843 1.02624

sp75\_516\_2\_pp\_1lag | .9981829 .0019253 -0.94 0.346 .9944164 1.001964

sp75\_516\_pp\_1lag | .9994456 .0010765 -0.51 0.607 .9973379 1.001558

sp75\_517\_1\_pp\_1lag | 1.01962 .0115593 1.71 0.087 .9972145 1.04253

sp75\_517\_pp\_1lag | .9997045 .0002427 -1.22 0.223 .999229 1.00018

sp75\_518\_1\_pp\_1lag | 1.001335 .0017309 0.77 0.440 .9979485 1.004734

sp75\_518\_pp\_1lag | 1.000879 .0009826 0.89 0.371 .9989545 1.002806

sp75\_519\_pp\_1lag | 1 (omitted)

sp75\_520\_pp\_1lag | .9984958 .0025327 -0.59 0.553 .9935441 1.003472

sp75\_523\_1\_pp\_1lag | .9999058 .001751 -0.05 0.957 .9964798 1.003344

sp75\_523\_2\_pp\_1lag | 1.001772 .0016463 1.08 0.281 .9985505 1.005004

sp75\_523\_pp\_1lag | .9953738 .0023861 -1.93 0.053 .9907081 1.000061

sp75\_600\_1\_pp\_1lag | 1 (omitted)

sp75\_600\_pp\_1lag | .9954608 .0140925 -0.32 0.748 .9682197 1.023468

sp75\_601\_1\_pp\_1lag | .9988022 .0008395 -1.43 0.154 .9971582 1.000449

sp75\_601\_2\_pp\_1lag | .9823155 .0174736 -1.00 0.316 .9486581 1.017167

sp75\_601\_3\_pp\_1lag | 1.007029 .0175439 0.40 0.688 .973224 1.042008

sp75\_601\_pp\_1lag | .9987508 .001089 -1.15 0.252 .9966187 1.000888

sp75\_602\_pp\_1lag | .9990618 .0028236 -0.33 0.740 .9935429 1.004611

sp75\_603\_pp\_1lag | 1.007072 .0042427 1.67 0.094 .9987905 1.015422

sp75\_604\_pp\_1lag | 1.000529 .0004493 1.18 0.239 .9996489 1.00141

sp75\_605\_pp\_1lag | .9999475 .001297 -0.04 0.968 .9974088 1.002493

sp75\_606\_pp\_1lag | 1.000039 .000594 0.07 0.947 .9988758 1.001204

sp75\_607\_pp\_1lag | .9995091 .0026385 -0.19 0.852 .994351 1.004694

sp75\_700\_1\_pp\_1lag | .9955111 .0086656 -0.52 0.605 .9786709 1.012641

sp75\_700\_pp\_1lag | .9941257 .0037235 -1.57 0.116 .9868544 1.001451

sp75\_701\_1\_pp\_1lag | 1.005559 .0077216 0.72 0.470 .9905385 1.020808

sp75\_701\_2\_pp\_1lag | 1.009461 .005315 1.79 0.074 .9990974 1.019932

sp75\_701\_3\_pp\_1lag | 1.003303 .0082404 0.40 0.688 .9872815 1.019585

sp75\_701\_4\_pp\_1lag | 1.005291 .0109777 0.48 0.629 .984004 1.027039

sp75\_701\_5\_pp\_1lag | .998751 .0077852 -0.16 0.873 .9836082 1.014127

sp75\_701\_pp\_1lag | 1.000274 .000931 0.29 0.768 .998451 1.002101

sp75\_702\_1\_pp\_1lag | 1 (omitted)

sp75\_702\_pp\_1lag | .9749524 .0178373 -1.39 0.166 .9406112 1.010547

sp75\_703\_1\_pp\_1lag | 1 (omitted)

sp75\_703\_2\_pp\_1lag | .9844122 .017947 -0.86 0.389 .9498578 1.020224

sp75\_703\_3\_pp\_1lag | 1.004362 .0052912 0.83 0.409 .9940445 1.014786

sp75\_703\_4\_pp\_1lag | 1 (omitted)

sp75\_703\_pp\_1lag | 1.001932 .0019386 1.00 0.318 .99814 1.005739

sp75\_704\_pp\_1lag | 1.00865 .0060127 1.44 0.149 .996934 1.020504

sp75\_705\_1\_pp\_1lag | 1 (omitted)

sp75\_705\_3\_pp\_1lag | 1 (omitted)

sp75\_705\_8\_pp\_1lag | 1.009186 .0078959 1.17 0.243 .9938284 1.024781

sp75\_705\_pp\_1lag | 1 (omitted)

sp75\_706\_pp\_1lag | .9996974 .0035484 -0.09 0.932 .9927668 1.006676

sp75\_800\_2\_pp\_1lag | 1 (omitted)

sp75\_800\_3\_pp\_1lag | 1.01533 .0066913 2.31 0.021 1.0023 1.02853

sp75\_800\_4\_pp\_1lag | .998133 .0054437 -0.34 0.732 .9875203 1.00886

sp75\_800\_pp\_1lag | .9983741 .0058947 -0.28 0.783 .9868872 1.009995

sp75\_801\_pp\_1lag | .9915559 .0116377 -0.72 0.470 .9690067 1.01463

sp75\_802\_pp\_1lag | .9877573 .0091146 -1.33 0.182 .9700536 1.005784

sp75\_803\_2\_pp\_1lag | 1 (omitted)

sp75\_803\_pp\_1lag | 1.003218 .0046827 0.69 0.491 .9940816 1.012438

sp75\_804\_pp\_1lag | 1.006495 .0075273 0.87 0.387 .9918491 1.021357

sp75\_805\_pp\_1lag | 1.015689 .0084247 1.88 0.061 .9993104 1.032336

sp75\_806\_pp\_1lag | 1 (omitted)

sp75\_807\_pp\_1lag | 1.000627 .00079 0.79 0.427 .9990799 1.002177

sp75\_808\_pp\_1lag | 1.009843 .0054052 1.83 0.067 .9993041 1.020492

sp75\_809\_pp\_1lag | 1.004189 .0023248 1.81 0.071 .9996427 1.008756

sp75\_810\_pp\_1lag | .9993733 .0037018 -0.17 0.866 .9921441 1.006655

sp75\_811\_pp\_1lag | 1.002306 .0033407 0.69 0.490 .9957795 1.008875

sp75\_812\_pp\_1lag | .9786019 .0075956 -2.79 0.005 .9638276 .9936028

sp75\_814\_pp\_1lag | 1 (omitted)

sp75\_815\_pp\_1lag | 1.02404 .0295749 0.82 0.411 .9676839 1.083677

sp75\_816\_pp\_1lag | 1.000563 .0017424 0.32 0.747 .9971534 1.003983

sp75\_818\_pp\_1lag | .9916822 .0109341 -0.76 0.449 .9704817 1.013346

sp75\_820\_pp\_1lag | 1.014712 .0172383 0.86 0.390 .9814823 1.049068

sp75\_821\_pp\_1lag | 1.010773 .0106665 1.02 0.310 .9900814 1.031896

sp75\_825\_pp\_1lag | .9960332 .0115538 -0.34 0.732 .9736437 1.018938

sp75\_827\_pp\_1lag | 1.010744 .0147826 0.73 0.465 .9821817 1.040136

sp75\_831\_pp\_1lag | .9981385 .0148798 -0.12 0.901 .9693967 1.027733

sp75\_832\_pp\_1lag | .9554392 .0190653 -2.28 0.022 .9187932 .9935468

sp75\_834\_pp\_1lag | 1 (omitted)

sp75\_900\_2\_pp\_1lag | .9655099 .0219395 -1.54 0.122 .9234527 1.009482

sp75\_900\_3\_pp\_1lag | .9929934 .0041189 -1.70 0.090 .9849532 1.001099

sp75\_900\_4\_pp\_1lag | .9976278 .0034856 -0.68 0.497 .9908194 1.004483

sp75\_900\_pp\_1lag | 1.00015 .0012173 0.12 0.902 .9977671 1.002539

sp75\_901\_pp\_1lag | .996987 .0044329 -0.68 0.497 .9883365 1.005713

sp75\_902\_1\_pp\_1lag | 1.020686 .0208324 1.00 0.316 .9806609 1.062344

sp75\_902\_2\_pp\_1lag | 1.010792 .0105466 1.03 0.304 .9903314 1.031676

sp75\_902\_4\_pp\_1lag | 1.004862 .003582 1.36 0.174 .9978662 1.011907

sp75\_902\_pp\_1lag | 1.001173 .0012318 0.95 0.341 .9987615 1.00359

sp75\_903\_pp\_1lag | 1.00284 .0022281 1.28 0.202 .998483 1.007217

sp75\_904\_pp\_1lag | 1.001426 .0007645 1.87 0.062 .9999285 1.002925

sp75\_905\_pp\_1lag | .9881574 .0120658 -0.98 0.329 .9647896 1.012091

sp75\_907\_pp\_1lag | .9996119 .004941 -0.08 0.937 .9899745 1.009343

sp77\_103\_pp\_1lag | 1 (omitted)

sp77\_104\_pp\_1lag | 1 (omitted)

sp77\_1103\_pp\_1lag | 1.000261 .0016414 0.16 0.874 .9970491 1.003483

sp77\_1104\_pp\_1lag | 1.000146 .000702 0.21 0.835 .9987714 1.001523

sp77\_1106\_pp\_1lag | 1.009942 .0281915 0.35 0.723 .9561721 1.066736

sp77\_1111\_pp\_1lag | .9826353 .0165375 -1.04 0.298 .9507511 1.015589

sp77\_1112\_pp\_1lag | 1.00083 .0135797 0.06 0.951 .9745653 1.027803

sp77\_1403\_pp\_1lag | 1.007552 .0273473 0.28 0.782 .9553532 1.062603

sp77\_1432\_pp\_1lag | 1 (omitted)

sp77\_1433\_pp\_1lag | .9946319 .022336 -0.24 0.811 .9518035 1.039387

sp77\_1434\_pp\_1lag | 1 (omitted)

sp77\_1437\_pp\_1lag | 1.004432 .0185714 0.24 0.811 .9686844 1.041499

sp77\_1438\_pp\_1lag | 1 (omitted)

sp77\_1605\_pp\_1lag | .9999928 .0006541 -0.01 0.991 .9987116 1.001276

sp77\_1606\_pp\_1lag | 1.00045 .0008982 0.50 0.617 .9986907 1.002211

sp77\_1710\_pp\_1lag | .9990897 .0020395 -0.45 0.656 .9951005 1.003095

sp77\_1802\_pp\_1lag | 1 (omitted)

sp77\_1906\_pp\_1lag | 1 (omitted)

sp77\_1915\_pp\_1lag | 1.001677 .0072437 0.23 0.817 .9875795 1.015975

sp77\_1916\_pp\_1lag | 1 (omitted)

sp77\_200\_pp\_1lag | 1.003169 .0037067 0.86 0.392 .9959303 1.010461

sp77\_202\_pp\_1lag | .9939531 .0020544 -2.93 0.003 .9899347 .9979878

sp77\_203\_pp\_1lag | .9882466 .0116252 -1.01 0.315 .9657223 1.011296

sp77\_204\_pp\_1lag | .9954822 .0047607 -0.95 0.344 .986195 1.004857

sp77\_205\_pp\_1lag | 1.001819 .0008399 2.17 0.030 1.000174 1.003467

sp77\_206\_pp\_1lag | 1.004325 .0044493 0.97 0.330 .9956428 1.013084

sp77\_207\_pp\_1lag | .9965723 .002572 -1.33 0.183 .991544 1.001626

sp77\_208\_pp\_1lag | 1.002361 .0013651 1.73 0.083 .9996886 1.00504

sp77\_210\_pp\_1lag | 1.005956 .0052687 1.13 0.257 .9956821 1.016335

sp77\_216\_pp\_1lag | 1 (omitted)

sp77\_305\_pp\_1lag | 1 (omitted)

sp77\_309\_pp\_1lag | 1 (omitted)

sp77\_314\_pp\_1lag | 1 (omitted)

sp77\_315\_pp\_1lag | 1 (omitted)

sp77\_400\_pp\_1lag | 1.000337 .0009145 0.37 0.712 .9985465 1.002132

sp77\_401\_pp\_1lag | .9944619 .0043551 -1.27 0.205 .9859625 1.003035

sp77\_402\_pp\_1lag | 1.000726 .0031285 0.23 0.817 .9946126 1.006876

sp77\_403\_1\_pp\_1lag | 1.001534 .0079137 0.19 0.846 .9861425 1.017165

sp77\_403\_2\_pp\_1lag | 1 (omitted)

sp77\_403\_pp\_1lag | 1.009922 .0120242 0.83 0.407 .9866277 1.033766

sp77\_404\_pp\_1lag | 1.000446 .0005415 0.82 0.410 .9993854 1.001508

sp77\_405\_pp\_1lag | 1.013012 .0072078 1.82 0.069 .998983 1.027238

sp77\_408\_pp\_1lag | .9983563 .0067584 -0.24 0.808 .9851975 1.011691

sp77\_409\_pp\_1lag | 1 (omitted)

sp77\_410\_pp\_1lag | .9998063 .0011366 -0.17 0.865 .9975811 1.002037

sp77\_411\_pp\_1lag | .9520885 .0166458 -2.81 0.005 .920016 .9852791

sp77\_412\_pp\_1lag | 1.0099 .0088818 1.12 0.263 .9926408 1.027459

sp77\_413\_pp\_1lag | 1 (omitted)

sp77\_500\_pp\_1lag | 1 (omitted)

sp77\_501\_pp\_1lag | .9980048 .0063199 -0.32 0.752 .9856947 1.010469

sp77\_502\_1\_pp\_1lag | .9994866 .028689 -0.02 0.986 .9448096 1.057328

sp77\_502\_2\_pp\_1lag | 1.012416 .0056621 2.21 0.027 1.001379 1.023574

sp77\_502\_pp\_1lag | 1.000043 .0008006 0.05 0.957 .998475 1.001613

sp77\_503\_1\_pp\_1lag | .9966662 .0172744 -0.19 0.847 .9633777 1.031105

sp77\_503\_pp\_1lag | .9970311 .0070826 -0.42 0.676 .9832456 1.01101

sp77\_504\_pp\_1lag | .9936032 .0027503 -2.32 0.020 .9882272 .9990085

sp77\_505\_pp\_1lag | 1.001644 .0014481 1.14 0.256 .9988102 1.004487

sp77\_506\_1\_pp\_1lag | 1.001831 .0024979 0.73 0.463 .9969474 1.006739

sp77\_506\_pp\_1lag | .9975386 .0027297 -0.90 0.368 .9922028 1.002903

sp77\_507\_pp\_1lag | .9935424 .0063974 -1.01 0.314 .9810826 1.00616

sp77\_508\_1\_pp\_1lag | .9818798 .010263 -1.75 0.080 .9619693 1.002202

sp77\_508\_pp\_1lag | 1.006492 .0049254 1.32 0.186 .9968848 1.016192

sp77\_509\_pp\_1lag | .9986578 .0034553 -0.39 0.698 .9919084 1.005453

sp77\_510\_pp\_1lag | 1 (omitted)

sp77\_511\_pp\_1lag | .9856672 .0082376 -1.73 0.084 .9696534 1.001945

sp77\_512\_pp\_1lag | .9989262 .0020284 -0.53 0.597 .9949584 1.00291

sp77\_513\_pp\_1lag | .9985545 .0016993 -0.85 0.395 .9952294 1.001891

sp77\_514\_pp\_1lag | .9278208 .0217466 -3.20 0.001 .8861624 .9714376

sp77\_515\_pp\_1lag | .9800324 .0135269 -1.46 0.144 .9538755 1.006907

sp77\_516\_pp\_1lag | .9986617 .001027 -1.30 0.193 .9966509 1.000677

sp77\_600\_pp\_1lag | 1.025618 .0087726 2.96 0.003 1.008568 1.042957

sp77\_601\_pp\_1lag | .9955388 .010906 -0.41 0.683 .9743912 1.017145

sp77\_602\_pp\_1lag | 1.007541 .0128263 0.59 0.555 .982713 1.032997

sp77\_603\_pp\_1lag | 1.020223 .0128878 1.58 0.113 .9952739 1.045798

sp77\_604\_pp\_1lag | .99799 .005781 -0.35 0.728 .9867235 1.009385

sp77\_605\_pp\_1lag | .963291 .0222028 -1.62 0.105 .9207426 1.007806

sp77\_606\_1\_pp\_1lag | 1 (omitted)

sp77\_606\_pp\_1lag | 1 (omitted)

sp77\_700\_1\_pp\_1lag | 1.024247 .0190341 1.29 0.197 .9876123 1.062241

sp77\_700\_pp\_1lag | .9918829 .0057036 -1.42 0.156 .9807668 1.003125

sp77\_701\_1\_pp\_1lag | 1.013155 .0100465 1.32 0.187 .9936546 1.033039

sp77\_701\_2\_pp\_1lag | 1.000182 .0035576 0.05 0.959 .9932333 1.007179

sp77\_701\_3\_pp\_1lag | 1.032009 .0244197 1.33 0.183 .9852397 1.080998

sp77\_701\_4\_pp\_1lag | 1.004622 .0094151 0.49 0.623 .9863377 1.023246

sp77\_701\_pp\_1lag | 1.001305 .0019598 0.67 0.505 .9974709 1.005153

sp77\_703\_pp\_1lag | 1 (omitted)

sp77\_704\_1\_pp\_1lag | 1 (omitted)

sp77\_704\_8\_pp\_1lag | .9902833 .013195 -0.73 0.464 .9647562 1.016486

sp77\_704\_9\_pp\_1lag | 1 (omitted)

sp77\_704\_pp\_1lag | .9752627 .0174349 -1.40 0.161 .9416826 1.01004

sp77\_705\_pp\_1lag | 1.005307 .0041389 1.29 0.199 .997227 1.013452

sp77\_800\_1\_pp\_1lag | .9978088 .0132625 -0.17 0.869 .9721505 1.024144

sp77\_800\_2\_pp\_1lag | 1.006637 .0085491 0.78 0.436 .9900193 1.023533

sp77\_800\_pp\_1lag | .9878969 .0134231 -0.90 0.370 .9619353 1.014559

sp77\_801\_pp\_1lag | 1 (omitted)

sp77\_802\_pp\_1lag | 1 (omitted)

sp77\_803\_pp\_1lag | .9911234 .0099002 -0.89 0.372 .9719081 1.010719

sp77\_804\_pp\_1lag | 1 (omitted)

sp77\_805\_pp\_1lag | 1.007826 .0151131 0.52 0.603 .9786356 1.037887

sp77\_807\_1\_pp\_1lag | 1.015962 .0120191 1.34 0.181 .9926758 1.039794

sp77\_807\_2\_pp\_1lag | 1.019064 .0228357 0.84 0.399 .975275 1.064818

sp77\_807\_3\_pp\_1lag | 1 (omitted)

sp77\_807\_pp\_1lag | .9936275 .0069031 -0.92 0.357 .9801894 1.00725

sp77\_808\_pp\_1lag | 1 (omitted)

sp77\_809\_pp\_1lag | .9932163 .0035692 -1.89 0.058 .9862454 1.000236

sp77\_810\_pp\_1lag | .9932213 .0106075 -0.64 0.524 .972647 1.014231

sp77\_900\_1\_pp\_1lag | 1.007089 .0154127 0.46 0.644 .9773289 1.037755

sp77\_900\_2\_pp\_1lag | 1.007458 .006151 1.22 0.224 .9954737 1.019586

sp77\_900\_pp\_1lag | .9952636 .0074911 -0.63 0.528 .980689 1.010055

sp77\_901\_1\_pp\_1lag | 1 (omitted)

sp77\_901\_pp\_1lag | 1.004907 .0100871 0.49 0.626 .9853296 1.024873

sp77\_902\_2\_pp\_1lag | 1 (omitted)

sp77\_902\_3\_pp\_1lag | 1.001613 .011278 0.14 0.886 .9797504 1.023963

sp77\_902\_pp\_1lag | 1.004281 .0174606 0.25 0.806 .9706354 1.039093

sp77\_903\_pp\_1lag | .9923374 .0089058 -0.86 0.391 .975035 1.009947

sp77\_904\_pp\_1lag | .9986622 .002104 -0.64 0.525 .9945469 1.002795

mine\_time | 1.001603 .015999 0.10 0.920 .9707311 1.033456

onsite\_insp\_hours | 1.000693 .0002476 2.80 0.005 1.000208 1.001179

|

state |

1 | 1.408333 .6331999 0.76 0.446 .5834412 3.399489

2 | 3.503187 1.324583 3.32 0.001 1.669618 7.350374

3 | 1.133118 .8169978 0.17 0.862 .2757683 4.655927

4 | 1.942027 .8221328 1.57 0.117 .8470513 4.452467

5 | 1.068789 .3976664 0.18 0.858 .5154468 2.216155

6 | .788817 .1257148 -1.49 0.137 .5771905 1.078036

7 | 1.220425 .3508989 0.69 0.488 .6946597 2.144126

8 | .2200551 .1305032 -2.55 0.011 .0688221 .7036146

9 | 1 (empty)

10 | .4123511 .1817405 -2.01 0.044 .1738229 .9781997

11 | .3008897 .1730743 -2.09 0.037 .0974517 .929021

12 | 1.006279 .2613879 0.02 0.981 .6048016 1.674264

13 | 2.231759 1.308848 1.37 0.171 .7070461 7.044448

14 | 1.41564 .5572614 0.88 0.377 .6544562 3.062141

15 | .5258512 .0969075 -3.49 0.000 .3664356 .7546197

17 | 1 (empty)

|

time |

2007 | 1.624752 .305093 2.58 0.010 1.124475 2.3476

2009 | .5035111 .1021463 -3.38 0.001 .3383198 .7493602

2010 | .77389 .1564745 -1.27 0.205 .5206824 1.150232

2011 | .9834836 .1843217 -0.09 0.929 .6811415 1.420028

2012 | .8748265 .1809256 -0.65 0.518 .5832869 1.312084

2013 | .628061 .1436564 -2.03 0.042 .4011497 .983325

2014 | .5250834 .1257946 -2.69 0.007 .3283261 .8397523

2015 | .6786817 .1593299 -1.65 0.099 .4283856 1.07522

|

\_cons | 8.08e-06 1.56e-06 -60.69 0.000 5.53e-06 .0000118

lnhours | 1 (offset)

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

(est1 stored)

**. lfit**

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

number of observations = 3127

number of covariate patterns = 3127

Pearson chi2(2851) = 2729.51

Prob > chi2 = 0.9478

**. linktest**

Iteration 0: log likelihood = -2163.5283

Iteration 1: log likelihood = -1349.0612

Iteration 2: log likelihood = -1347.3292

Iteration 3: log likelihood = -1347.3138

Iteration 4: log likelihood = -1347.3138

Logistic regression Number of obs = 3,127

LR chi2(2) = 1632.43

Prob > chi2 = 0.0000

Log likelihood = -1347.3138 Pseudo R2 = 0.3773

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

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

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

\_hat | 1.070634 .0402038 26.63 0.000 .9918358 1.149432

\_hatsq | -.0255538 .0186911 -1.37 0.172 -.0621876 .01108

\_cons | .0385125 .0549336 0.70 0.483 -.0691553 .1461803

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

**. estat classification**

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 1305 313 | 1618

- | 337 1172 | 1509

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

Total | 1642 1485 | 3127

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

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

Sensitivity Pr( +| D) 79.48%

Specificity Pr( -|~D) 78.92%

Positive predictive value Pr( D| +) 80.66%

Negative predictive value Pr(~D| -) 77.67%

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

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

False - rate for true D Pr( -| D) 20.52%

False + rate for classified + Pr(~D| +) 19.34%

False - rate for classified - Pr( D| -) 22.33%

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

Correctly classified 79.21%

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

**. summ MR\_indicator spbpp2\_yhat**

Variable | Obs Mean Std. Dev. Min Max

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

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

spbpp2\_yhat | 5,975 .4666487 .3033306 .000074 .9999974