. // Model SP.B.V.2

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

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

sp71\_701\_1lag dropped and 1 obs not used

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

sp75\_1003\_1\_1lag dropped and 9 obs not used

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

sp75\_1400\_1\_1lag dropped and 7 obs not used

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

sp75\_1401\_1\_1lag dropped and 2 obs not used

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

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

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

sp75\_1405\_1\_1lag dropped and 5 obs not used

note: sp75\_1431\_1lag != 0 predicts success perfectly

sp75\_1431\_1lag dropped and 1 obs not used

note: sp75\_510\_1\_1lag != 0 predicts success perfectly

sp75\_510\_1\_1lag dropped and 1 obs not used

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

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

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

sp75\_703\_1\_1lag dropped and 5 obs not used

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

sp75\_705\_1\_1lag dropped and 13 obs not used

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

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

note: sp77\_801\_1\_1lag != 0 predicts failure perfectly

sp77\_801\_1\_1lag dropped and 1 obs not used

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

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

note: sp75\_1402\_2\_1lag != 0 predicts success perfectly

sp75\_1402\_2\_1lag dropped and 1 obs not used

note: sp75\_705\_2\_1lag != 0 predicts success perfectly

sp75\_705\_2\_1lag dropped and 1 obs not used

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

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

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

sp77\_1432\_1lag dropped and 6 obs not used

note: sp77\_702\_1lag != 0 predicts success perfectly

sp77\_702\_1lag dropped and 1 obs not used

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

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

note: sp47\_43\_1lag != 0 predicts success perfectly

sp47\_43\_1lag dropped and 1 obs not used

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

sp75\_1403\_3\_1lag dropped and 4 obs not used

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

sp75\_153\_1lag dropped and 5 obs not used

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

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

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

sp77\_103\_1lag dropped and 2 obs not used

note: sp77\_413\_1lag != 0 predicts success perfectly

sp77\_413\_1lag dropped and 2 obs not used

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

sp77\_703\_1lag dropped and 2 obs not used

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

sp48\_24\_1lag dropped and 1 obs not used

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

sp48\_4\_1lag dropped and 1 obs not used

note: sp75\_1403\_4\_1lag != 0 predicts success perfectly

sp75\_1403\_4\_1lag dropped and 5 obs not used

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

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

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

sp75\_814\_1lag dropped and 18 obs not used

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

sp75\_834\_1lag dropped and 1 obs not used

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

sp77\_104\_1lag dropped and 2 obs not used

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

sp77\_1434\_1lag dropped and 20 obs not used

note: sp77\_314\_1lag != 0 predicts success perfectly

sp77\_314\_1lag dropped and 2 obs not used

note: sp75\_155\_1lag != 0 predicts success perfectly

sp75\_155\_1lag dropped and 3 obs not used

note: sp77\_305\_1lag != 0 predicts success perfectly

sp77\_305\_1lag dropped and 2 obs not used

note: sp77\_315\_1lag != 0 predicts success perfectly

sp77\_315\_1lag dropped and 1 obs not used

note: sp75\_1106\_6\_1lag != 0 predicts success perfectly

sp75\_1106\_6\_1lag dropped and 1 obs not used

note: sp75\_1436\_1lag != 0 predicts success perfectly

sp75\_1436\_1lag dropped and 3 obs not used

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

sp75\_156\_1lag dropped and 5 obs not used

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

sp77\_1906\_1lag dropped and 12 obs not used

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

sp77\_1916\_1lag dropped and 8 obs not used

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

sp77\_216\_1lag dropped and 71 obs not used

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

sp77\_606\_1lag dropped and 1 obs not used

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

sp75\_1437\_1lag dropped and 5 obs not used

note: sp75\_511\_1\_1lag != 0 predicts failure perfectly

sp75\_511\_1\_1lag dropped and 1 obs not used

note: sp75\_1438\_1lag != 0 predicts success perfectly

sp75\_1438\_1lag dropped and 1 obs not used

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

sp77\_1438\_1lag dropped and 1 obs not used

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

sp75\_1403\_9\_1lag dropped and 26 obs not used

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

sp75\_519\_1lag dropped and 2 obs not used

note: sp75\_819\_1lag != 0 predicts success perfectly

sp75\_819\_1lag dropped and 1 obs not used

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

sp72\_610\_1lag dropped and 3 obs not used

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

sp75\_150\_1lag dropped and 5 obs not used

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

sp77\_500\_1lag dropped and 6 obs not used

note: 17.state != 0 predicts success perfectly

17.state dropped and 11 obs not used

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

note: sp77\_906\_1lag omitted because of collinearity

note: sp77\_309\_1lag omitted because of collinearity

Iteration 0: log pseudolikelihood = -3028.7845

Iteration 1: log pseudolikelihood = -2731.028

Iteration 2: log pseudolikelihood = -2713.7198

Iteration 3: log pseudolikelihood = -2703.7275

Iteration 4: log pseudolikelihood = -2700.0746

Iteration 5: log pseudolikelihood = -2699.2158

Iteration 6: log pseudolikelihood = -2699.1751

Iteration 7: log pseudolikelihood = -2699.1741

Iteration 8: log pseudolikelihood = -2699.1741

Logistic regression Number of obs = 5,951

Wald chi2(299) = .

Log pseudolikelihood = -2699.1741 Prob > chi2 = .

(Std. Err. adjusted for 1,233 clusters in mineid)

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| Robust

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

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

sp47\_41\_1lag | .7508054 .1394771 -1.54 0.123 .5216747 1.080575

sp48\_11\_1lag | 1.248892 .2435042 1.14 0.254 .8522384 1.83016

sp71\_701\_1lag | 1 (omitted)

sp75\_1001\_1\_1lag | 2.135754 2.173437 0.75 0.456 .2906236 15.69537

sp75\_1001\_1lag | .1876615 .1668903 -1.88 0.060 .0328389 1.072413

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

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

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

sp75\_1401\_1lag | .7024348 .4375616 -0.57 0.571 .2071927 2.381428

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

sp75\_1404\_1\_1lag | 3.925165 3.045481 1.76 0.078 .857872 17.95946

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

sp75\_1431\_1lag | 1 (omitted)

sp75\_151\_1lag | .6057495 .4390557 -0.69 0.489 .1463289 2.507586

sp75\_1721\_1lag | .2137087 .2132237 -1.55 0.122 .030238 1.5104

sp75\_1731\_1lag | .9557203 .0120887 -3.58 0.000 .9323181 .9797099

sp75\_1911\_1lag | 1.02091 .0598127 0.35 0.724 .9101592 1.145136

sp75\_211\_1lag | 1.001199 .0618012 0.02 0.985 .887111 1.129959

sp75\_341\_1lag | .3263655 .6135579 -0.60 0.551 .0081935 12.99987

sp75\_506\_1\_1lag | 1.847386 .6536833 1.73 0.083 .9233507 3.696143

sp75\_510\_1\_1lag | 1 (omitted)

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

sp75\_511\_1lag | .8826129 .1349231 -0.82 0.414 .6541072 1.190945

sp75\_512\_1\_1lag | .8893959 .8098012 -0.13 0.898 .1493036 5.298099

sp75\_513\_1\_1lag | 1.776558 .5876582 1.74 0.082 .9289987 3.397378

sp75\_516\_1\_1lag | .9506746 .505066 -0.10 0.924 .3355931 2.693089

sp75\_517\_1\_1lag | 1.188843 .6273082 0.33 0.743 .4226462 3.344043

sp75\_518\_1\_1lag | 1.12003 .0912366 1.39 0.164 .954754 1.313916

sp75\_523\_1\_1lag | 1.051561 .0850223 0.62 0.534 .8974537 1.232132

sp75\_600\_1\_1lag | 2.33153 1.420865 1.39 0.165 .7061669 7.69794

sp75\_601\_1\_1lag | .9501102 .0369299 -1.32 0.188 .8804174 1.02532

sp75\_601\_1lag | .9748522 .0545662 -0.46 0.649 .8735621 1.087887

sp75\_700\_1\_1lag | .7394284 .2935215 -0.76 0.447 .3396296 1.609855

sp75\_701\_1\_1lag | .8904054 .1287455 -0.80 0.422 .670673 1.182129

sp75\_701\_1lag | 1.047545 .0474665 1.03 0.305 .9585235 1.144834

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

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

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

sp75\_801\_1lag | .8824498 .4700287 -0.23 0.814 .3106743 2.50654

sp75\_811\_1lag | 1.032797 .1953861 0.17 0.865 .7128262 1.496396

sp75\_821\_1lag | 1.139026 .6199973 0.24 0.811 .3919271 3.310257

sp75\_831\_1lag | 1.699994 1.279871 0.70 0.481 .3886917 7.435147

sp75\_901\_1lag | .9999361 .2603832 -0.00 1.000 .6002325 1.665808

sp75\_902\_1\_1lag | 7.291635 6.077376 2.38 0.017 1.423548 37.3489

sp77\_1111\_1lag | .0961951 .0782294 -2.88 0.004 .01954 .4735674

sp77\_401\_1lag | .8619441 .1685905 -0.76 0.448 .5874755 1.264644

sp77\_403\_1\_1lag | 1.128038 .4892635 0.28 0.781 .4820944 2.63946

sp77\_411\_1lag | .0271066 .035985 -2.72 0.007 .0020094 .3656608

sp77\_501\_1lag | 1.138028 .4511092 0.33 0.744 .5232879 2.474944

sp77\_502\_1\_1lag | 1.531095 1.902855 0.34 0.732 .1340058 17.49367

sp77\_503\_1\_1lag | .8539159 .8169939 -0.17 0.869 .1309237 5.569446

sp77\_506\_1\_1lag | .9921219 .1023635 -0.08 0.939 .810478 1.214476

sp77\_508\_1\_1lag | 1.033471 .3556811 0.10 0.924 .5264378 2.028846

sp77\_511\_1lag | .2931712 .1254245 -2.87 0.004 .1267536 .6780821

sp77\_601\_1lag | .3983054 .2950704 -1.24 0.214 .0932468 1.701369

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

sp77\_700\_1\_1lag | 1.895387 1.269397 0.95 0.340 .5100619 7.043246

sp77\_701\_1\_1lag | .910172 .279763 -0.31 0.759 .4982949 1.662496

sp77\_701\_1lag | 1.03423 .0880399 0.40 0.693 .875302 1.222015

sp77\_704\_1\_1lag | 1.475239 1.067594 0.54 0.591 .3571647 6.093349

sp77\_800\_1\_1lag | .7923877 .3735147 -0.49 0.622 .3145571 1.996071

sp77\_801\_1\_1lag | 1 (omitted)

sp77\_801\_1lag | 3.256881 4.00781 0.96 0.337 .291972 36.32975

sp77\_807\_1\_1lag | .7508087 .4224659 -0.51 0.611 .249215 2.261957

sp77\_900\_1\_1lag | 1.205952 .7195023 0.31 0.754 .3745254 3.883104

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

sp77\_901\_1lag | 1.013278 .5586502 0.02 0.981 .3439032 2.985529

sp47\_42\_1lag | .3156617 .1232459 -2.95 0.003 .1468527 .6785191

sp75\_1100\_2\_1lag | 1.018725 .0246309 0.77 0.443 .971575 1.068163

sp75\_1102\_1lag | .9196574 .0976851 -0.79 0.430 .7468137 1.132504

sp75\_1106\_2\_1lag | 1.128429 .1904488 0.72 0.474 .8106142 1.570849

sp75\_1400\_2\_1lag | .5110836 .3649822 -0.94 0.347 .1260723 2.071877

sp75\_1402\_2\_1lag | 1 (omitted)

sp75\_1432\_1lag | 1.674515 1.158378 0.75 0.456 .4315724 6.49717

sp75\_1600\_2\_1lag | .8290278 .0720198 -2.16 0.031 .6992348 .9829132

sp75\_1912\_1lag | 1.810245 1.033328 1.04 0.298 .5913609 5.541431

sp75\_202\_1lag | 1.02039 .01027 2.01 0.045 1.000458 1.040718

sp75\_212\_1lag | .6813216 .1077248 -2.43 0.015 .4997667 .9288315

sp75\_312\_1lag | .9883524 .0646953 -0.18 0.858 .8693488 1.123646

sp75\_342\_1lag | .9778748 .0229894 -0.95 0.341 .9338388 1.023987

sp75\_352\_1lag | .9195221 .2049551 -0.38 0.707 .5940667 1.423276

sp75\_382\_1lag | 1.401436 .5742229 0.82 0.410 .627773 3.128554

sp75\_512\_2\_1lag | 1.084523 .0650792 1.35 0.176 .964185 1.219879

sp75\_512\_1lag | 1.010454 .0152428 0.69 0.491 .9810162 1.040776

sp75\_516\_2\_1lag | .9710234 .101781 -0.28 0.779 .7906935 1.19248

sp75\_523\_2\_1lag | 1.057761 .0667322 0.89 0.373 .9347308 1.196983

sp75\_601\_2\_1lag | .5480078 .5614041 -0.59 0.557 .0735829 4.081279

sp75\_602\_1lag | .8828884 .1046619 -1.05 0.293 .6998425 1.113811

sp75\_701\_2\_1lag | 1.012486 .2692304 0.05 0.963 .6012373 1.705031

sp75\_702\_1lag | .2278153 .261316 -1.29 0.197 .0240553 2.157522

sp75\_703\_2\_1lag | 1.300514 .9082084 0.38 0.707 .3308888 5.111496

sp75\_705\_2\_1lag | 1 (omitted)

sp75\_800\_2\_1lag | .210152 .1550797 -2.11 0.035 .0494763 .8926266

sp75\_802\_1lag | .562421 .2102931 -1.54 0.124 .270266 1.170393

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

sp75\_812\_1lag | .1715772 .0893589 -3.38 0.001 .0618225 .4761818

sp75\_832\_1lag | .0721735 .1042268 -1.82 0.069 .0042574 1.223518

sp75\_900\_2\_1lag | .396912 .4003433 -0.92 0.360 .054971 2.865857

sp75\_902\_2\_1lag | 1.204362 .4336422 0.52 0.606 .5946664 2.43916

sp75\_902\_1lag | 1.061186 .0645702 0.98 0.329 .9418857 1.195597

sp77\_1112\_1lag | 1.539595 1.382291 0.48 0.631 .2649562 8.946206

sp77\_1432\_1lag | 1 (omitted)

sp77\_1802\_1lag | .0995421 .1639521 -1.40 0.161 .0039448 2.511826

sp77\_202\_1lag | .7803257 .061509 -3.15 0.002 .6686212 .9106925

sp77\_402\_1lag | 1.019984 .1528233 0.13 0.895 .7604292 1.368133

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

sp77\_412\_1lag | 1.883351 .7415627 1.61 0.108 .8705102 4.074636

sp77\_502\_2\_1lag | 1.49481 .3395217 1.77 0.077 .9577438 2.333042

sp77\_502\_1lag | 1.03947 .043331 0.93 0.353 .9579196 1.127963

sp77\_512\_1lag | .9887698 .09387 -0.12 0.905 .8208909 1.190981

sp77\_602\_1lag | 1.317654 .7272843 0.50 0.617 .44666 3.887098

sp77\_701\_2\_1lag | .8463971 .1628308 -0.87 0.386 .5805226 1.23404

sp77\_702\_1lag | 1 (omitted)

sp77\_800\_2\_1lag | 1.16013 .3170649 0.54 0.587 .6790036 1.982171

sp77\_802\_1lag | .318427 .2269878 -1.61 0.108 .0787478 1.287601

sp77\_807\_2\_1lag | .5471802 .4307977 -0.77 0.444 .1169433 2.560268

sp77\_900\_2\_1lag | 1.424897 .3959827 1.27 0.203 .8264803 2.456602

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

sp77\_902\_1lag | .9457087 .6990982 -0.08 0.940 .2220864 4.027104

sp47\_43\_1lag | 1 (omitted)

sp72\_503\_1lag | .7507215 .2014482 -1.07 0.285 .443678 1.270252

sp75\_1106\_3\_1lag | 1.038414 .0629177 0.62 0.534 .9221386 1.169352

sp75\_1400\_3\_1lag | 1.269368 .4653174 0.65 0.515 .6188129 2.60385

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

sp75\_1433\_1lag | 1.286167 .5990483 0.54 0.589 .5162259 3.204462

sp75\_153\_1lag | 1 (omitted)

sp75\_1903\_1lag | 1.471369 .6575328 0.86 0.387 .6128191 3.532733

sp75\_1913\_1lag | 1.02319 .210945 0.11 0.911 .6830764 1.532652

sp75\_503\_1lag | 1.024725 .0101135 2.47 0.013 1.005093 1.04474

sp75\_513\_1lag | .7659909 .1495541 -1.37 0.172 .5224356 1.12309

sp75\_523\_1lag | .9472603 .0652767 -0.79 0.432 .8275841 1.084243

sp75\_601\_3\_1lag | .6593668 .7368969 -0.37 0.709 .0737631 5.894068

sp75\_603\_1lag | 1.392547 .2678574 1.72 0.085 .9551704 2.030201

sp75\_701\_3\_1lag | .9256315 .3909121 -0.18 0.855 .4045379 2.117956

sp75\_703\_3\_1lag | 1.403399 .3657418 1.30 0.193 .8420701 2.338913

sp75\_703\_1lag | 1.228145 .1163553 2.17 0.030 1.020014 1.478744

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

sp75\_800\_3\_1lag | .9093106 .2583949 -0.33 0.738 .5209907 1.587064

sp75\_803\_1lag | .76723 .2270677 -0.90 0.371 .4295421 1.370394

sp75\_900\_3\_1lag | 1.030805 .2204623 0.14 0.887 .6778397 1.567568

sp75\_903\_1lag | 1.414292 .1869981 2.62 0.009 1.091423 1.832674

sp77\_103\_1lag | 1 (omitted)

sp77\_1103\_1lag | 1.09275 .0891947 1.09 0.277 .931199 1.282329

sp77\_1403\_1lag | 2.808255 3.56308 0.81 0.416 .2335837 33.76219

sp77\_1433\_1lag | .7857302 .510652 -0.37 0.711 .219822 2.808509

sp77\_203\_1lag | .8253289 .6751843 -0.23 0.814 .1660646 4.101826

sp77\_403\_1lag | 1.775727 1.19509 0.85 0.394 .4747935 6.641213

sp77\_413\_1lag | 1 (omitted)

sp77\_503\_1lag | .6428028 .1688339 -1.68 0.092 .3841557 1.075593

sp77\_513\_1lag | .898078 .0840438 -1.15 0.251 .7475789 1.078875

sp77\_603\_1lag | 3.481192 2.55866 1.70 0.090 .8243253 14.70135

sp77\_701\_3\_1lag | 4.614212 6.614337 1.07 0.286 .2779235 76.60725

sp77\_703\_1lag | 1 (omitted)

sp77\_803\_1lag | 2.504127 2.260285 1.02 0.309 .426915 14.68829

sp77\_807\_3\_1lag | 3.104171 2.826495 1.24 0.213 .5210582 18.4929

sp77\_902\_3\_1lag | 1.112806 .540938 0.22 0.826 .4291887 2.885299

sp77\_903\_1lag | .3040479 .2133223 -1.70 0.090 .0768657 1.202684

sp47\_44\_1lag | 1.797324 .6917264 1.52 0.128 .845335 3.821411

sp48\_24\_1lag | 1 (omitted)

sp48\_4\_1lag | 1 (omitted)

sp75\_1103\_4\_1lag | 1.013764 .0400347 0.35 0.729 .9382576 1.095347

sp75\_1104\_1lag | .9127964 .142172 -0.59 0.558 .6726599 1.23866

sp75\_1106\_4\_1lag | .6335307 .255945 -1.13 0.259 .2870015 1.398464

sp75\_1107\_14\_1lag | .7510452 1.13959 -0.19 0.850 .03838 14.69696

sp75\_1400\_4\_1lag | .8610331 .4364028 -0.30 0.768 .31886 2.32509

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

sp75\_1404\_1lag | .768177 .7175471 -0.28 0.778 .1231294 4.792486

sp75\_1434\_1lag | .3656801 .1725307 -2.13 0.033 .1450434 .9219446

sp75\_1914\_1lag | 1.024702 .0434943 0.57 0.565 .9429041 1.113595

sp75\_214\_1lag | 1.162643 .1347938 1.30 0.194 .9263184 1.459259

sp75\_324\_1lag | 1.078088 .3236224 0.25 0.802 .5986033 1.941644

sp75\_344\_1lag | .4820528 .1901409 -1.85 0.064 .2225086 1.044342

sp75\_504\_1lag | .9479193 .1968704 -0.26 0.797 .6309398 1.424147

sp75\_514\_1lag | 1.078235 .0605379 1.34 0.180 .9658778 1.203661

sp75\_604\_1lag | 1.033935 .0235918 1.46 0.144 .9887143 1.081223

sp75\_701\_4\_1lag | 1.951977 1.204473 1.08 0.278 .5824223 6.542011

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

sp75\_704\_1lag | 2.063144 .8711273 1.72 0.086 .901829 4.719922

sp75\_800\_4\_1lag | 1.060177 .2198674 0.28 0.778 .7060735 1.591868

sp75\_804\_1lag | 1.082216 .2693179 0.32 0.751 .664486 1.762553

sp75\_814\_1lag | 1 (omitted)

sp75\_834\_1lag | 1 (omitted)

sp75\_900\_4\_1lag | .9715216 .1430623 -0.20 0.844 .7279608 1.296573

sp75\_902\_4\_1lag | 1.277824 .2418489 1.30 0.195 .8817941 1.851717

sp75\_904\_1lag | 1.119058 .0445031 2.83 0.005 1.035147 1.209772

sp77\_104\_1lag | 1 (omitted)

sp77\_1104\_1lag | 1.004053 .0301195 0.13 0.893 .9467221 1.064856

sp77\_1434\_1lag | 1 (omitted)

sp77\_204\_1lag | .9064015 .1737092 -0.51 0.608 .6225731 1.319626

sp77\_314\_1lag | 1 (omitted)

sp77\_404\_1lag | 1.032922 .0289867 1.15 0.248 .9776434 1.091326

sp77\_504\_1lag | .9238711 .1369227 -0.53 0.593 .6909693 1.235276

sp77\_514\_1lag | .0409496 .03627 -3.61 0.000 .0072164 .2323694

sp77\_604\_1lag | 1.132366 .3346148 0.42 0.674 .6345363 2.020772

sp77\_701\_4\_1lag | 1.565577 .7389131 0.95 0.342 .6207673 3.948392

sp77\_704\_1lag | .8754887 .7019258 -0.17 0.868 .1818851 4.214092

sp77\_804\_1lag | .3874663 .4516454 -0.81 0.416 .0394495 3.805632

sp77\_904\_1lag | .9502047 .0990581 -0.49 0.624 .7746047 1.165613

sp48\_25\_1lag | .8914128 .2499505 -0.41 0.682 .5145215 1.54438

sp48\_5\_1lag | 1.341214 .4925242 0.80 0.424 .6530068 2.754728

sp75\_1106\_5\_1lag | .8413215 .1139273 -1.28 0.202 .6452036 1.097052

sp75\_1403\_5\_1lag | .9819185 .07999 -0.22 0.823 .8370166 1.151905

sp75\_1405\_1lag | .9818093 .1084307 -0.17 0.868 .7907163 1.219084

sp75\_1435\_1lag | .3522759 .2858543 -1.29 0.199 .0718084 1.728186

sp75\_155\_1lag | 1 (omitted)

sp75\_1725\_1lag | 1.031552 .021132 1.52 0.129 .9909549 1.073813

sp75\_1915\_1lag | 1.394486 .4619654 1.00 0.315 .7284973 2.669318

sp75\_505\_1lag | 1.648837 .6731468 1.22 0.221 .740747 3.670164

sp75\_515\_1lag | .9226298 .0332507 -2.23 0.025 .8597081 .9901567

sp75\_605\_1lag | .9637428 .0591815 -0.60 0.548 .8544576 1.087006

sp75\_701\_5\_1lag | 1.133163 .4949815 0.29 0.775 .4813665 2.667529

sp75\_705\_1lag | 8.3976 9.728486 1.84 0.066 .8670651 81.33148

sp75\_805\_1lag | 1.609486 .6139624 1.25 0.212 .7620501 3.399309

sp75\_815\_1lag | 1.949041 2.350191 0.55 0.580 .183411 20.71173

sp75\_825\_1lag | .5759894 .3387982 -0.94 0.348 .1818595 1.824287

sp75\_905\_1lag | .2593802 .1863427 -1.88 0.060 .0634484 1.06036

sp77\_1605\_1lag | 1.001518 .0271687 0.06 0.955 .9496587 1.056208

sp77\_1915\_1lag | 1.035837 .3838356 0.10 0.924 .5010411 2.141456

sp77\_205\_1lag | 1.047789 .0505193 0.97 0.333 .9533077 1.151634

sp77\_305\_1lag | 1 (omitted)

sp77\_315\_1lag | 1 (omitted)

sp77\_405\_1lag | 2.580387 1.121379 2.18 0.029 1.10096 6.047811

sp77\_505\_1lag | 1.042942 .0677473 0.65 0.517 .9182649 1.184548

sp77\_515\_1lag | 1.54365 1.615606 0.41 0.678 .1984584 12.00683

sp77\_605\_1lag | .3729164 .3708668 -0.99 0.321 .0530992 2.618996

sp77\_705\_1lag | 1.690056 .427138 2.08 0.038 1.029845 2.773514

sp77\_805\_1lag | 1.193152 1.00863 0.21 0.835 .2275797 6.255442

sp48\_26\_1lag | 1.238086 .2048245 1.29 0.197 .8952227 1.712263

sp48\_6\_1lag | .8839075 .1360459 -0.80 0.423 .6537246 1.19514

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

sp75\_1106\_1lag | 1.365841 .4846244 0.88 0.380 .6813634 2.737924

sp75\_1403\_6\_1lag | .9283534 .0621005 -1.11 0.266 .8142799 1.058408

sp75\_1436\_1lag | 1 (omitted)

sp75\_156\_1lag | 1 (omitted)

sp75\_1712\_6\_1lag | 1.018335 .1586604 0.12 0.907 .7503613 1.38201

sp75\_1726\_1lag | 1.347584 .5789345 0.69 0.487 .5805927 3.127806

sp75\_506\_1lag | .895588 .162396 -0.61 0.543 .6277126 1.277779

sp75\_516\_1lag | .9390031 .0478299 -1.24 0.217 .8497857 1.037587

sp75\_606\_1lag | .9747524 .0363713 -0.69 0.493 .9060102 1.04871

sp75\_706\_1lag | .7571324 .1081866 -1.95 0.052 .5721945 1.001844

sp75\_806\_1lag | .4703929 .4301524 -0.82 0.410 .0783568 2.823871

sp75\_816\_1lag | 1.08451 .1290334 0.68 0.495 .8589319 1.36933

sp77\_1106\_1lag | 1.6272 2.10789 0.38 0.707 .1284655 20.61082

sp77\_1606\_1lag | 1.060902 .0450127 1.39 0.164 .9762472 1.152897

sp77\_1906\_1lag | 1 (omitted)

sp77\_1916\_1lag | 1 (omitted)

sp77\_206\_1lag | 1.000124 .2614131 0.00 1.000 .5991922 1.669327

sp77\_216\_1lag | 1 (omitted)

sp77\_506\_1lag | .8230578 .1029658 -1.56 0.120 .6440858 1.051761

sp77\_516\_1lag | .954723 .0466584 -0.95 0.343 .8675174 1.050695

sp77\_606\_1lag | 1 (omitted)

sp77\_906\_1lag | 1 (omitted)

sp48\_27\_1lag | 1.34586 .3555203 1.12 0.261 .8019506 2.258666

sp48\_7\_1lag | 1.115793 .2109385 0.58 0.562 .7703099 1.616224

sp75\_1403\_7\_1lag | .6207434 .2585436 -1.14 0.252 .2743981 1.404246

sp75\_1437\_1lag | 1 (omitted)

sp75\_1727\_1lag | 1.041035 1.324214 0.03 0.975 .0860445 12.59529

sp75\_337\_1lag | .9611547 .1399676 -0.27 0.786 .7224994 1.278642

sp75\_507\_1lag | .9945887 .154377 -0.03 0.972 .7337068 1.348231

sp75\_517\_1lag | .9889067 .0154554 -0.71 0.475 .959074 1.019667

sp75\_607\_1lag | .9080315 .1256037 -0.70 0.486 .692402 1.190813

sp75\_807\_1lag | 1.04838 .0398259 1.24 0.214 .9731578 1.129417

sp75\_827\_1lag | .8480411 .9015773 -0.16 0.877 .1055552 6.813247

sp75\_907\_1lag | .6752908 .1699239 -1.56 0.119 .4123845 1.105807

sp77\_1437\_1lag | 1.330694 1.763275 0.22 0.829 .0991218 17.86436

sp77\_207\_1lag | .990324 .1192038 -0.08 0.936 .782203 1.25382

sp77\_507\_1lag | .6387011 .2331068 -1.23 0.219 .312345 1.306053

sp77\_807\_1lag | .4943409 .1632018 -2.13 0.033 .2588277 .944153

sp48\_28\_1lag | 1.008335 .2080907 0.04 0.968 .6728863 1.511011

sp48\_8\_1lag | .9186572 .2125036 -0.37 0.714 .583786 1.445617

sp75\_1403\_8\_1lag | 1.005959 .0706805 0.08 0.933 .8765434 1.154482

sp75\_1438\_1lag | 1 (omitted)

sp75\_1728\_1lag | 2.136474 1.427782 1.14 0.256 .5765659 7.916739

sp75\_208\_1lag | .9599251 .0480761 -0.82 0.414 .8701747 1.058932

sp75\_518\_1lag | 1.049112 .0544499 0.92 0.356 .9476404 1.161448

sp75\_705\_8\_1lag | 2.097749 1.199117 1.30 0.195 .6842095 6.431583

sp75\_808\_1lag | 1.647787 .4939582 1.67 0.096 .9156634 2.965284

sp75\_818\_1lag | 1.121491 .7745588 0.17 0.868 .2896763 4.341891

sp77\_1438\_1lag | 1 (omitted)

sp77\_208\_1lag | 1.143924 .0703624 2.19 0.029 1.014005 1.290489

sp77\_408\_1lag | .7431303 .282782 -0.78 0.435 .3524998 1.566647

sp77\_508\_1lag | 1.817 .525176 2.07 0.039 1.031165 3.201708

sp77\_704\_8\_1lag | 1.94566 .9647888 1.34 0.179 .7361805 5.14221

sp77\_808\_1lag | 28.00239 25.10639 3.72 0.000 4.830864 162.3176

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

sp75\_1729\_1lag | .7661808 .5742794 -0.36 0.722 .1763299 3.329175

sp75\_1909\_1lag | 1.032939 .0333923 1.00 0.316 .9695214 1.100505

sp75\_519\_1lag | 1 (omitted)

sp75\_809\_1lag | 1.107584 .1226612 0.92 0.356 .8914741 1.376082

sp75\_819\_1lag | 1 (omitted)

sp77\_309\_1lag | 1 (omitted)

sp77\_409\_1lag | 1.428697 2.045056 0.25 0.803 .086401 23.62443

sp77\_509\_1lag | .7945459 .1196915 -1.53 0.127 .5914156 1.067444

sp77\_704\_9\_1lag | .4979872 .7077355 -0.49 0.624 .0307254 8.071219

sp77\_809\_1lag | .6842201 .1276125 -2.03 0.042 .4747226 .9861698

sp72\_610\_1lag | 1 (omitted)

sp72\_620\_1lag | 7.418437 5.339895 2.78 0.005 1.809696 30.41019

sp72\_630\_1lag | 1.049026 .0333392 1.51 0.132 .9856756 1.116447

sp75\_100\_1lag | 2.18548 1.289001 1.33 0.185 .6878695 6.943645

sp75\_1101\_20\_1lag | 3.574129 3.610572 1.26 0.207 .4935028 25.88516

sp75\_1400\_1lag | 1.153582 .302485 0.54 0.586 .6900041 1.928613

sp75\_1403\_10\_1lag | 1.13068 .1043019 1.33 0.183 .9436672 1.354754

sp75\_150\_1lag | 1 (omitted)

sp75\_160\_1lag | .8157711 .5003391 -0.33 0.740 .2451876 2.714176

sp75\_1712\_10\_1lag | .6391468 .3073053 -0.93 0.352 .2490797 1.640072

sp75\_1720\_1lag | 1.056851 .115735 0.50 0.614 .8527064 1.30987

sp75\_1730\_1lag | 1.081737 .284639 0.30 0.765 .6458678 1.811755

sp75\_1910\_1lag | 1.031629 .0611806 0.53 0.600 .9184238 1.158788

sp75\_320\_1lag | .797616 .0553063 -3.26 0.001 .6962608 .9137255

sp75\_340\_1lag | 1.019407 .0497573 0.39 0.694 .9264045 1.121747

sp75\_520\_1lag | 1.065338 .1070472 0.63 0.529 .8748968 1.297232

sp75\_600\_1lag | .7750363 .709183 -0.28 0.781 .1289571 4.657992

sp75\_700\_1lag | 1.107325 .1716114 0.66 0.511 .8172542 1.500351

sp75\_800\_1lag | .7109386 .1823642 -1.33 0.184 .4300201 1.175372

sp75\_810\_1lag | 1.061494 .1478087 0.43 0.668 .8079627 1.394582

sp75\_820\_1lag | 1.183492 1.344254 0.15 0.882 .1277437 10.96457

sp75\_900\_1lag | 1.004228 .0622882 0.07 0.946 .8892739 1.134041

sp77\_1710\_1lag | .9624612 .0911316 -0.40 0.686 .7994409 1.158724

sp77\_200\_1lag | 1.044811 .1001219 0.46 0.647 .865903 1.260685

sp77\_210\_1lag | 1.865945 .6661721 1.75 0.081 .9268434 3.756569

sp77\_400\_1lag | 1.043436 .044227 1.00 0.316 .9602554 1.133822

sp77\_410\_1lag | .964711 .04197 -0.83 0.409 .8858609 1.05058

sp77\_500\_1lag | 1 (omitted)

sp77\_510\_1lag | 1.02495 .9005073 0.03 0.978 .1831673 5.735312

sp77\_600\_1lag | 3.174327 1.759286 2.08 0.037 1.071262 9.406055

sp77\_700\_1lag | .8049749 .2586891 -0.68 0.500 .4287832 1.511218

sp77\_800\_1lag | .4833072 .3331379 -1.05 0.291 .12517 1.866149

sp77\_810\_1lag | .6546055 .3910904 -0.71 0.478 .202971 2.11118

sp77\_900\_1lag | .51468 .2013524 -1.70 0.090 .2390735 1.108009

mine\_time | 1.000755 .0148983 0.05 0.960 .971977 1.030386

onsite\_insp\_hours | 1.000958 .0002247 4.27 0.000 1.000518 1.001399

|

state |

1 | 1.333158 .494329 0.78 0.438 .644555 2.757423

2 | 2.50349 .5224554 4.40 0.000 1.66306 3.768633

3 | .6709584 .297302 -0.90 0.368 .281532 1.599055

4 | 1.630902 .6739279 1.18 0.237 .7255892 3.665767

5 | .8528919 .263658 -0.51 0.607 .4653274 1.563254

6 | .6434917 .0679333 -4.18 0.000 .5232169 .7914147

7 | .7110026 .2803372 -0.87 0.387 .3282886 1.539879

8 | 1.721869 .3535722 2.65 0.008 1.151363 2.575061

9 | 2.944069 1.110924 2.86 0.004 1.405248 6.167982

10 | .5268324 .2311571 -1.46 0.144 .2229424 1.244951

11 | .4963257 .2354807 -1.48 0.140 .1958466 1.257818

12 | 1.07224 .1946964 0.38 0.701 .7511586 1.530567

13 | 2.073939 .7646304 1.98 0.048 1.006863 4.271902

14 | .8872881 .3200162 -0.33 0.740 .4375862 1.799143

15 | .5411898 .0681943 -4.87 0.000 .4227575 .6928001

17 | 1 (empty)

|

time |

2000 | .9879677 .1433221 -0.08 0.933 .7434658 1.312878

2002 | .7030084 .1117676 -2.22 0.027 .5147928 .9600384

2003 | .7435986 .131914 -1.67 0.095 .5252135 1.052789

2004 | .4714082 .0809087 -4.38 0.000 .336747 .6599189

2005 | .482178 .0762612 -4.61 0.000 .3536564 .6574055

2006 | .4772901 .0773481 -4.56 0.000 .3474077 .6557304

2007 | .4872985 .0894718 -3.92 0.000 .3400227 .6983647

2008 | .3406115 .0620545 -5.91 0.000 .2383321 .4867837

2009 | .167602 .0329436 -9.09 0.000 .1140167 .2463713

2010 | .2665627 .0552098 -6.38 0.000 .1776236 .4000351

2011 | .3372559 .0667772 -5.49 0.000 .2287812 .497163

2012 | .2944615 .0614303 -5.86 0.000 .1956373 .4432059

2013 | .2278075 .0509947 -6.61 0.000 .1469017 .3532723

2014 | .1899002 .0450831 -7.00 0.000 .1192468 .3024156

2015 | .239879 .0583298 -5.87 0.000 .1489399 .3863433

|

\_cons | .000021 2.93e-06 -77.01 0.000 .0000159 .0000276

lnhours | 1 (offset)

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

(est1 stored)

**. lfit**

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

number of observations = 5951

number of covariate patterns = 5936

Pearson chi2(5633) = 5339.93

Prob > chi2 = 0.9975

**. linktest**

Iteration 0: log likelihood = -4113.7183

Iteration 1: log likelihood = -2699.5144

Iteration 2: log likelihood = -2694.7879

Iteration 3: log likelihood = -2694.4309

Iteration 4: log likelihood = -2694.4303

Iteration 5: log likelihood = -2694.4303

Logistic regression Number of obs = 5,951

LR chi2(2) = 2838.58

Prob > chi2 = 0.0000

Log likelihood = -2694.4303 Pseudo R2 = 0.3450

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

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

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

\_hat | 1.089066 .0303642 35.87 0.000 1.029554 1.148579

\_hatsq | -.0170936 .0151932 -1.13 0.261 -.0468717 .0126844

\_cons | .0208659 .0385875 0.54 0.589 -.0547642 .096496

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

**. estat classification**

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 2489 640 | 3129

- | 669 2153 | 2822

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

Total | 3158 2793 | 5951

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

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

Sensitivity Pr( +| D) 78.82%

Specificity Pr( -|~D) 77.09%

Positive predictive value Pr( D| +) 79.55%

Negative predictive value Pr(~D| -) 76.29%

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

False + rate for true ~D Pr( +|~D) 22.91%

False - rate for true D Pr( -| D) 21.18%

False + rate for classified + Pr(~D| +) 20.45%

False - rate for classified - Pr( D| -) 23.71%

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

Correctly classified 78.00%

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

**. summ MR\_indicator spbv2\_yhat**

Variable | Obs Mean Std. Dev. Min Max

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

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

spbv2\_yhat | 5,951 .5306671 .3047782 .0003426 .9999995