. // Model SP.B.SSV.2

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

note: sp47\_44\_ss\_1lag != 0 predicts success perfectly

sp47\_44\_ss\_1lag dropped and 1 obs not used

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

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

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

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

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

sp72\_610\_ss\_1lag dropped and 1 obs not used

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

sp75\_1001\_1\_ss\_1lag dropped and 2 obs not used

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

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

note: sp75\_1101\_20\_ss\_1lag != 0 predicts success perfectly

sp75\_1101\_20\_ss\_1lag dropped and 1 obs not used

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

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

note: sp75\_1107\_14\_ss\_1lag != 0 predicts success perfectly

sp75\_1107\_14\_ss\_1lag dropped and 1 obs not used

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

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

note: sp75\_1400\_2\_ss\_1lag != 0 predicts success perfectly

sp75\_1400\_2\_ss\_1lag dropped and 1 obs not used

note: sp75\_1400\_4\_ss\_1lag != 0 predicts success perfectly

sp75\_1400\_4\_ss\_1lag dropped and 1 obs not used

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

sp75\_1403\_11\_ss\_1lag dropped and 1 obs not used

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

sp75\_1403\_3\_ss\_1lag dropped and 1 obs not used

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

sp75\_1403\_4\_ss\_1lag dropped and 2 obs not used

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

sp75\_1403\_9\_ss\_1lag dropped and 10 obs not used

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

sp75\_1404\_ss\_1lag dropped and 2 obs not used

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

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

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

sp75\_1431\_ss\_1lag dropped and 1 obs not used

note: sp75\_1432\_ss\_1lag != 0 predicts failure perfectly

sp75\_1432\_ss\_1lag dropped and 2 obs not used

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

sp75\_1437\_ss\_1lag dropped and 5 obs not used

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

sp75\_150\_ss\_1lag dropped and 2 obs not used

note: sp75\_151\_ss\_1lag != 0 predicts success perfectly

sp75\_151\_ss\_1lag dropped and 2 obs not used

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

sp75\_153\_ss\_1lag dropped and 1 obs not used

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

sp75\_155\_ss\_1lag dropped and 1 obs not used

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

sp75\_156\_ss\_1lag dropped and 1 obs not used

note: sp75\_1712\_10\_ss\_1lag != 0 predicts success perfectly

sp75\_1712\_10\_ss\_1lag dropped and 8 obs not used

note: sp75\_1712\_6\_ss\_1lag != 0 predicts success perfectly

sp75\_1712\_6\_ss\_1lag dropped and 3 obs not used

note: sp75\_1721\_ss\_1lag != 0 predicts failure perfectly

sp75\_1721\_ss\_1lag dropped and 2 obs not used

note: sp75\_1727\_ss\_1lag != 0 predicts success perfectly

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

note: sp75\_1729\_ss\_1lag != 0 predicts success perfectly

sp75\_1729\_ss\_1lag dropped and 16 obs not used

note: sp75\_1913\_ss\_1lag != 0 predicts success perfectly

sp75\_1913\_ss\_1lag dropped and 7 obs not used

note: sp75\_1915\_ss\_1lag != 0 predicts success perfectly

sp75\_1915\_ss\_1lag dropped and 5 obs not used

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

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

note: sp75\_513\_1\_ss\_1lag != 0 predicts success perfectly

sp75\_513\_1\_ss\_1lag dropped and 4 obs not used

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

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

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

sp75\_600\_ss\_1lag dropped and 1 obs not used

note: sp75\_701\_3\_ss\_1lag != 0 predicts success perfectly

sp75\_701\_3\_ss\_1lag dropped and 18 obs not used

note: sp75\_701\_4\_ss\_1lag != 0 predicts success perfectly

sp75\_701\_4\_ss\_1lag dropped and 4 obs not used

note: sp75\_701\_5\_ss\_1lag != 0 predicts success perfectly

sp75\_701\_5\_ss\_1lag dropped and 13 obs not used

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

sp75\_705\_1\_ss\_1lag dropped and 8 obs not used

note: sp75\_705\_8\_ss\_1lag != 0 predicts failure perfectly

sp75\_705\_8\_ss\_1lag dropped and 1 obs not used

note: sp75\_800\_2\_ss\_1lag != 0 predicts failure perfectly

sp75\_800\_2\_ss\_1lag dropped and 1 obs not used

note: sp75\_800\_4\_ss\_1lag != 0 predicts success perfectly

sp75\_800\_4\_ss\_1lag dropped and 2 obs not used

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

sp75\_803\_2\_ss\_1lag dropped and 2 obs not used

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

sp75\_814\_ss\_1lag dropped and 2 obs not used

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

sp75\_819\_ss\_1lag dropped and 1 obs not used

note: sp75\_821\_ss\_1lag != 0 predicts success perfectly

sp75\_821\_ss\_1lag dropped and 2 obs not used

note: sp75\_827\_ss\_1lag != 0 predicts success perfectly

sp75\_827\_ss\_1lag dropped and 2 obs not used

note: sp75\_831\_ss\_1lag != 0 predicts success perfectly

sp75\_831\_ss\_1lag dropped and 1 obs not used

note: sp75\_902\_1\_ss\_1lag != 0 predicts success perfectly

sp75\_902\_1\_ss\_1lag dropped and 5 obs not used

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

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

note: sp77\_1106\_ss\_1lag != 0 predicts failure perfectly

sp77\_1106\_ss\_1lag dropped and 1 obs not used

note: sp77\_1433\_ss\_1lag != 0 predicts success perfectly

sp77\_1433\_ss\_1lag dropped and 1 obs not used

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

sp77\_1434\_ss\_1lag dropped and 11 obs not used

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

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

note: sp77\_1802\_ss\_1lag != 0 predicts success perfectly

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

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

sp77\_1906\_ss\_1lag dropped and 1 obs not used

note: sp77\_1915\_ss\_1lag != 0 predicts success perfectly

sp77\_1915\_ss\_1lag dropped and 3 obs not used

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

sp77\_1916\_ss\_1lag dropped and 6 obs not used

note: sp75\_601\_2\_ss\_1lag != 0 predicts failure perfectly

sp75\_601\_2\_ss\_1lag dropped and 2 obs not used

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

sp77\_216\_ss\_1lag dropped and 4 obs not used

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

sp77\_315\_ss\_1lag dropped and 1 obs not used

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

sp77\_409\_ss\_1lag dropped and 2 obs not used

note: sp77\_411\_ss\_1lag != 0 predicts success perfectly

sp77\_411\_ss\_1lag dropped and 1 obs not used

note: sp77\_412\_ss\_1lag != 0 predicts success perfectly

sp77\_412\_ss\_1lag dropped and 11 obs not used

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

sp77\_413\_ss\_1lag dropped and 1 obs not used

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

sp77\_500\_ss\_1lag dropped and 8 obs not used

note: sp77\_503\_1\_ss\_1lag != 0 predicts success perfectly

sp77\_503\_1\_ss\_1lag dropped and 2 obs not used

note: sp77\_514\_ss\_1lag != 0 predicts success perfectly

sp77\_514\_ss\_1lag dropped and 1 obs not used

note: sp77\_515\_ss\_1lag != 0 predicts success perfectly

sp77\_515\_ss\_1lag dropped and 1 obs not used

note: sp77\_700\_1\_ss\_1lag != 0 predicts success perfectly

sp77\_700\_1\_ss\_1lag dropped and 4 obs not used

note: sp77\_704\_8\_ss\_1lag != 0 predicts success perfectly

sp77\_704\_8\_ss\_1lag dropped and 1 obs not used

note: sp77\_704\_9\_ss\_1lag != 0 predicts success perfectly

sp77\_704\_9\_ss\_1lag dropped and 2 obs not used

note: sp77\_800\_1\_ss\_1lag != 0 predicts success perfectly

sp77\_800\_1\_ss\_1lag dropped and 4 obs not used

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

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

note: sp77\_804\_ss\_1lag != 0 predicts failure perfectly

sp77\_804\_ss\_1lag dropped and 1 obs not used

note: sp77\_805\_ss\_1lag != 0 predicts success perfectly

sp77\_805\_ss\_1lag dropped and 2 obs not used

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

sp77\_807\_3\_ss\_1lag dropped and 4 obs not used

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

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

note: sp77\_810\_ss\_1lag != 0 predicts success perfectly

sp77\_810\_ss\_1lag dropped and 2 obs not used

note: sp77\_900\_2\_ss\_1lag != 0 predicts failure perfectly

sp77\_900\_2\_ss\_1lag dropped and 1 obs not used

note: sp77\_902\_3\_ss\_1lag != 0 predicts failure perfectly

sp77\_902\_3\_ss\_1lag dropped and 2 obs not used

note: sp77\_903\_ss\_1lag != 0 predicts success perfectly

sp77\_903\_ss\_1lag dropped and 7 obs not used

note: 17.state != 0 predicts success perfectly

17.state dropped and 6 obs not used

note: sp77\_502\_1\_ss\_1lag omitted because of collinearity

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

note: sp77\_701\_3\_ss\_1lag omitted because of collinearity

note: sp77\_901\_1\_ss\_1lag omitted because of collinearity

Iteration 0: log pseudolikelihood = -3019.1558

Iteration 1: log pseudolikelihood = -2752.6287

Iteration 2: log pseudolikelihood = -2728.7775

Iteration 3: log pseudolikelihood = -2727.1791

Iteration 4: log pseudolikelihood = -2727.163

Iteration 5: log pseudolikelihood = -2727.163

Logistic regression Number of obs = 5,987

Wald chi2(240) = .

Log pseudolikelihood = -2727.163 Prob > chi2 = .

(Std. Err. adjusted for 1,232 clusters in mineid)

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

| Robust

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

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

sp47\_41\_ss\_1lag | .0997729 .1010726 -2.28 0.023 .0137001 .7266116

sp47\_44\_ss\_1lag | 1 (omitted)

sp48\_11\_ss\_1lag | .7546886 .234227 -0.91 0.364 .4107587 1.386592

sp48\_25\_ss\_1lag | 1.598182 .7667219 0.98 0.328 .6241165 4.092485

sp48\_26\_ss\_1lag | 1.558588 .3305341 2.09 0.036 1.028525 2.361827

sp48\_27\_ss\_1lag | 1.029611 .3521707 0.09 0.932 .526655 2.012891

sp48\_28\_ss\_1lag | .6314224 .2112243 -1.37 0.169 .3277742 1.216369

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

sp48\_5\_ss\_1lag | 1.099011 .5233218 0.20 0.843 .4321966 2.794622

sp48\_6\_ss\_1lag | .5524769 .1489418 -2.20 0.028 .3257162 .9371062

sp48\_7\_ss\_1lag | 1.610653 .4790522 1.60 0.109 .8991487 2.885178

sp48\_8\_ss\_1lag | 1.36919 .5851842 0.74 0.462 .5924678 3.16419

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

sp72\_503\_ss\_1lag | .3764371 .20615 -1.78 0.074 .1286901 1.101133

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

sp72\_620\_ss\_1lag | 3.322456 2.475815 1.61 0.107 .7711949 14.31378

sp72\_630\_ss\_1lag | 1.02322 .0413283 0.57 0.570 .9453416 1.107515

sp75\_100\_ss\_1lag | 1.23849 .9642801 0.27 0.784 .2692483 5.696818

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

sp75\_1001\_ss\_1lag | .1449035 .1475292 -1.90 0.058 .0196994 1.06587

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

sp75\_1100\_2\_ss\_1lag | 1.05583 .0747428 0.77 0.443 .9190451 1.212972

sp75\_1101\_20\_ss\_1lag | 1 (omitted)

sp75\_1102\_ss\_1lag | 1.080781 .1876137 0.45 0.655 .7690892 1.518792

sp75\_1103\_4\_ss\_1lag | .9876512 .0983844 -0.12 0.901 .812478 1.200593

sp75\_1104\_ss\_1lag | .5596747 .2341816 -1.39 0.165 .2464745 1.270865

sp75\_1106\_2\_ss\_1lag | .9712526 .2376267 -0.12 0.905 .6012807 1.568871

sp75\_1106\_3\_ss\_1lag | 1.260057 .1515527 1.92 0.055 .9954337 1.595027

sp75\_1106\_4\_ss\_1lag | .4426832 .2747443 -1.31 0.189 .1311621 1.494094

sp75\_1106\_5\_ss\_1lag | .6947251 .1864585 -1.36 0.175 .4105419 1.175624

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

sp75\_1106\_ss\_1lag | 2.087112 2.048352 0.75 0.453 .3048959 14.28696

sp75\_1107\_14\_ss\_1lag | 1 (omitted)

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

sp75\_1400\_2\_ss\_1lag | 1 (omitted)

sp75\_1400\_3\_ss\_1lag | .9103482 .7621164 -0.11 0.911 .176444 4.696865

sp75\_1400\_4\_ss\_1lag | 1 (omitted)

sp75\_1400\_ss\_1lag | 2.853028 1.560494 1.92 0.055 .976635 8.334506

sp75\_1401\_ss\_1lag | .8174056 .5970649 -0.28 0.783 .1952931 3.421278

sp75\_1403\_10\_ss\_1lag | 1.638101 .3290108 2.46 0.014 1.10504 2.428307

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

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

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

sp75\_1403\_5\_ss\_1lag | .9237656 .1268048 -0.58 0.563 .7058587 1.208943

sp75\_1403\_6\_ss\_1lag | .94388 .1078358 -0.51 0.613 .7545174 1.180767

sp75\_1403\_7\_ss\_1lag | 1.300269 .4621311 0.74 0.460 .6478967 2.609518

sp75\_1403\_8\_ss\_1lag | .9105364 .1749166 -0.49 0.626 .6248547 1.326831

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

sp75\_1404\_1\_ss\_1lag | 1.556169 1.188919 0.58 0.563 .3481252 6.956293

sp75\_1404\_ss\_1lag | 1 (omitted)

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

sp75\_1405\_ss\_1lag | 1.061653 .1395389 0.46 0.649 .8205493 1.373602

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

sp75\_1432\_ss\_1lag | 1 (omitted)

sp75\_1433\_ss\_1lag | .8614102 .5305377 -0.24 0.809 .2576082 2.88045

sp75\_1434\_ss\_1lag | .3413298 .1805742 -2.03 0.042 .1210213 .9626903

sp75\_1435\_ss\_1lag | 1.125491 2.130872 0.06 0.950 .0275282 46.01573

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

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

sp75\_151\_ss\_1lag | 1 (omitted)

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

sp75\_155\_ss\_1lag | 1 (omitted)

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

sp75\_1600\_2\_ss\_1lag | .6190303 .3025955 -0.98 0.327 .2374795 1.613607

sp75\_1712\_10\_ss\_1lag | 1 (omitted)

sp75\_1712\_6\_ss\_1lag | 1 (omitted)

sp75\_1720\_ss\_1lag | 1.115535 .1341517 0.91 0.363 .8812914 1.412039

sp75\_1721\_ss\_1lag | 1 (omitted)

sp75\_1725\_ss\_1lag | 1.027999 .0234199 1.21 0.225 .9831066 1.074942

sp75\_1726\_ss\_1lag | 1.622499 .7315308 1.07 0.283 .6705112 3.926114

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

sp75\_1728\_ss\_1lag | 1.644228 1.420292 0.58 0.565 .3024754 8.937871

sp75\_1729\_ss\_1lag | 1 (omitted)

sp75\_1730\_ss\_1lag | .9786565 .5138453 -0.04 0.967 .3497079 2.738767

sp75\_1731\_ss\_1lag | .9161298 .0195609 -4.10 0.000 .8785822 .955282

sp75\_1903\_ss\_1lag | .6003388 .2833785 -1.08 0.280 .2380142 1.514223

sp75\_1909\_ss\_1lag | .9819893 .0822452 -0.22 0.828 .8333271 1.157172

sp75\_1910\_ss\_1lag | .9323533 .1469957 -0.44 0.657 .6845092 1.269936

sp75\_1911\_ss\_1lag | 1.198082 .1938367 1.12 0.264 .8725115 1.645136

sp75\_1912\_ss\_1lag | 1.532852 2.454084 0.27 0.790 .0664865 35.34005

sp75\_1913\_ss\_1lag | 1 (omitted)

sp75\_1914\_ss\_1lag | 1.041052 .1049624 0.40 0.690 .8543808 1.268509

sp75\_1915\_ss\_1lag | 1 (omitted)

sp75\_202\_ss\_1lag | 1.028936 .0130058 2.26 0.024 1.003758 1.054745

sp75\_208\_ss\_1lag | .9894502 .0579535 -0.18 0.856 .8821406 1.109814

sp75\_211\_ss\_1lag | .8960595 .0605551 -1.62 0.104 .7848979 1.022964

sp75\_212\_ss\_1lag | .9710586 .2501883 -0.11 0.909 .5860541 1.608989

sp75\_214\_ss\_1lag | 1.634604 .7012792 1.15 0.252 .705065 3.789621

sp75\_312\_ss\_1lag | .8037588 .325223 -0.54 0.589 .3636688 1.776419

sp75\_320\_ss\_1lag | 1.397575 .4175244 1.12 0.263 .7781785 2.509983

sp75\_324\_ss\_1lag | 1.772816 1.323419 0.77 0.443 .410427 7.657576

sp75\_337\_ss\_1lag | .7095872 .1339693 -1.82 0.069 .4901171 1.027334

sp75\_340\_ss\_1lag | 1.074619 .0924692 0.84 0.403 .9078411 1.272035

sp75\_342\_ss\_1lag | .9858481 .0544711 -0.26 0.796 .8846643 1.098605

sp75\_344\_ss\_1lag | .5684824 .1927607 -1.67 0.096 .2924772 1.104948

sp75\_352\_ss\_1lag | 1.00455 .6491409 0.01 0.994 .28309 3.564664

sp75\_382\_ss\_1lag | 2.051751 1.956396 0.75 0.451 .3165793 13.2974

sp75\_503\_ss\_1lag | 1.066247 .0303413 2.25 0.024 1.008407 1.127404

sp75\_504\_ss\_1lag | 1.251485 1.417268 0.20 0.843 .1359771 11.51822

sp75\_505\_ss\_1lag | 1.46567 1.609653 0.35 0.728 .1703002 12.61412

sp75\_506\_1\_ss\_1lag | 3.268686 3.750403 1.03 0.302 .3449272 30.97555

sp75\_506\_ss\_1lag | 2.993816 2.977661 1.10 0.270 .4262032 21.02972

sp75\_507\_ss\_1lag | 1.648146 .602363 1.37 0.172 .8051916 3.373589

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

sp75\_511\_ss\_1lag | .934305 .1634016 -0.39 0.698 .6631643 1.316304

sp75\_512\_1\_ss\_1lag | 1.217284 1.021593 0.23 0.815 .2349793 6.306003

sp75\_512\_2\_ss\_1lag | .8705171 .1833542 -0.66 0.510 .5760916 1.315416

sp75\_512\_ss\_1lag | 1.03929 .0326447 1.23 0.220 .9772373 1.105283

sp75\_513\_1\_ss\_1lag | 1 (omitted)

sp75\_513\_ss\_1lag | .3208898 .2007036 -1.82 0.069 .0941811 1.093322

sp75\_514\_ss\_1lag | 1.004457 .1015197 0.04 0.965 .8239504 1.224508

sp75\_515\_ss\_1lag | .8678145 .075459 -1.63 0.103 .7318338 1.029061

sp75\_516\_1\_ss\_1lag | .710117 .5873204 -0.41 0.679 .1403854 3.592013

sp75\_516\_2\_ss\_1lag | 6.884258 6.843037 1.94 0.052 .9811883 48.30164

sp75\_516\_ss\_1lag | 1.310219 .2326845 1.52 0.128 .9250756 1.855712

sp75\_517\_1\_ss\_1lag | 1.24892 1.107995 0.25 0.802 .2194724 7.107045

sp75\_517\_ss\_1lag | .9965921 .0182689 -0.19 0.852 .9614212 1.03305

sp75\_518\_1\_ss\_1lag | .999571 .2479779 -0.00 0.999 .6146727 1.625487

sp75\_518\_ss\_1lag | 1.193739 .134382 1.57 0.116 .9573867 1.488439

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

sp75\_520\_ss\_1lag | .88718 .1372726 -0.77 0.439 .6550977 1.201482

sp75\_523\_1\_ss\_1lag | .9629615 .0893811 -0.41 0.684 .8027887 1.155092

sp75\_523\_2\_ss\_1lag | 1.121972 .0882279 1.46 0.143 .9617157 1.308934

sp75\_523\_ss\_1lag | .8303818 .0657925 -2.35 0.019 .7109446 .9698842

sp75\_600\_1\_ss\_1lag | 1.353986 .637768 0.64 0.520 .5378643 3.40844

sp75\_600\_ss\_1lag | 1 (omitted)

sp75\_601\_1\_ss\_1lag | .908166 .0757922 -1.15 0.248 .7711291 1.069556

sp75\_601\_2\_ss\_1lag | 1 (omitted)

sp75\_601\_3\_ss\_1lag | .7653084 .6406529 -0.32 0.749 .1483477 3.948135

sp75\_601\_ss\_1lag | .9226095 .0795775 -0.93 0.350 .7791114 1.092537

sp75\_602\_ss\_1lag | .7118711 .1315145 -1.84 0.066 .4956171 1.022484

sp75\_603\_ss\_1lag | 1.609545 .4861988 1.58 0.115 .8903868 2.909561

sp75\_604\_ss\_1lag | 1.039858 .0289141 1.41 0.160 .9847038 1.098101

sp75\_605\_ss\_1lag | 1.01776 .1068483 0.17 0.867 .8284819 1.250281

sp75\_606\_ss\_1lag | .9162251 .0459187 -1.75 0.081 .8305051 1.010793

sp75\_607\_ss\_1lag | 1.062598 .2020169 0.32 0.749 .7320516 1.542396

sp75\_700\_1\_ss\_1lag | .4351081 .273596 -1.32 0.186 .1268708 1.49222

sp75\_700\_ss\_1lag | .6569741 .2171155 -1.27 0.204 .3437517 1.255601

sp75\_701\_1\_ss\_1lag | .8299248 .181477 -0.85 0.394 .5406413 1.273997

sp75\_701\_2\_ss\_1lag | 1.92035 .7067785 1.77 0.076 .9334656 3.950593

sp75\_701\_3\_ss\_1lag | 1 (omitted)

sp75\_701\_4\_ss\_1lag | 1 (omitted)

sp75\_701\_5\_ss\_1lag | 1 (omitted)

sp75\_701\_ss\_1lag | 1.225681 .0783801 3.18 0.001 1.081296 1.389346

sp75\_703\_2\_ss\_1lag | 8.595228 6.742371 2.74 0.006 1.847344 39.99144

sp75\_703\_3\_ss\_1lag | .9373124 .5606209 -0.11 0.914 .290247 3.026921

sp75\_703\_ss\_1lag | 1.014708 .1902448 0.08 0.938 .7026707 1.465314

sp75\_704\_ss\_1lag | .2884783 .2561865 -1.40 0.162 .0506051 1.644494

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

sp75\_705\_8\_ss\_1lag | 1 (omitted)

sp75\_705\_ss\_1lag | 7.559638 9.679335 1.58 0.114 .6146464 92.97724

sp75\_706\_ss\_1lag | .6500641 .2426004 -1.15 0.248 .3128184 1.35089

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

sp75\_800\_3\_ss\_1lag | .236383 .1988953 -1.71 0.087 .0454366 1.229779

sp75\_800\_4\_ss\_1lag | 1 (omitted)

sp75\_800\_ss\_1lag | .6261427 .1776055 -1.65 0.099 .3591119 1.091734

sp75\_801\_ss\_1lag | 1.039911 .7958094 0.05 0.959 .2320597 4.660071

sp75\_802\_ss\_1lag | .3774055 .3175175 -1.16 0.247 .0725568 1.963081

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

sp75\_803\_ss\_1lag | .8707548 .2952674 -0.41 0.683 .4479803 1.692516

sp75\_804\_ss\_1lag | .6924689 .1734234 -1.47 0.142 .4238611 1.131298

sp75\_805\_ss\_1lag | 1.357738 .8564708 0.48 0.628 .3943412 4.674767

sp75\_806\_ss\_1lag | .5042587 .5214795 -0.66 0.508 .0664328 3.827578

sp75\_807\_ss\_1lag | 1.04994 .0905457 0.57 0.572 .886661 1.243286

sp75\_808\_ss\_1lag | 1.326813 .6851891 0.55 0.584 .4822079 3.650773

sp75\_809\_ss\_1lag | 1.030495 .2076667 0.15 0.882 .6942418 1.529612

sp75\_810\_ss\_1lag | 1.232094 .4384871 0.59 0.558 .6133548 2.475005

sp75\_811\_ss\_1lag | 1.018386 .6385246 0.03 0.977 .2979969 3.48027

sp75\_812\_ss\_1lag | .1001389 .0610053 -3.78 0.000 .0303421 .3304919

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

sp75\_815\_ss\_1lag | 1.19044 1.70892 0.12 0.903 .0714128 19.84443

sp75\_816\_ss\_1lag | .7975868 .2430108 -0.74 0.458 .4389669 1.449186

sp75\_818\_ss\_1lag | .437406 .3247853 -1.11 0.265 .1020576 1.874666

sp75\_819\_ss\_1lag | 1 (omitted)

sp75\_820\_ss\_1lag | 1.072003 .8691623 0.09 0.932 .2188042 5.252139

sp75\_821\_ss\_1lag | 1 (omitted)

sp75\_825\_ss\_1lag | .6793717 2.364243 -0.11 0.912 .0007411 622.7664

sp75\_827\_ss\_1lag | 1 (omitted)

sp75\_831\_ss\_1lag | 1 (omitted)

sp75\_900\_2\_ss\_1lag | 1.759149 2.091685 0.48 0.635 .1710789 18.08876

sp75\_900\_3\_ss\_1lag | .385687 .201718 -1.82 0.069 .138372 1.075033

sp75\_900\_4\_ss\_1lag | 1.634958 1.061135 0.76 0.449 .4581967 5.833928

sp75\_900\_ss\_1lag | .9783612 .0722539 -0.30 0.767 .8465182 1.130738

sp75\_901\_ss\_1lag | .9877983 .3857084 -0.03 0.975 .4595123 2.123437

sp75\_902\_1\_ss\_1lag | 1 (omitted)

sp75\_902\_2\_ss\_1lag | 1.422438 .7145436 0.70 0.483 .5314261 3.807357

sp75\_902\_4\_ss\_1lag | 1.025476 .4126724 0.06 0.950 .4659986 2.256661

sp75\_902\_ss\_1lag | 1.136322 .108138 1.34 0.179 .9429674 1.369323

sp75\_903\_ss\_1lag | 1.356324 .2733363 1.51 0.130 .913741 2.013278

sp75\_904\_ss\_1lag | 1.136133 .0660661 2.19 0.028 1.013752 1.273287

sp75\_905\_ss\_1lag | .2917662 .3574535 -1.01 0.315 .0264361 3.220129

sp75\_907\_ss\_1lag | 1.123696 .6303396 0.21 0.835 .3742534 3.373899

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

sp77\_1103\_ss\_1lag | 1.065717 .2897853 0.23 0.815 .6254418 1.815922

sp77\_1104\_ss\_1lag | 1.039957 .0498596 0.82 0.414 .9466847 1.142418

sp77\_1106\_ss\_1lag | 1 (omitted)

sp77\_1111\_ss\_1lag | .9701906 1.049488 -0.03 0.978 .1164351 8.084074

sp77\_1112\_ss\_1lag | 1.259824 1.081208 0.27 0.788 .2343097 6.773755

sp77\_1403\_ss\_1lag | .251512 .4407763 -0.79 0.431 .0081063 7.803594

sp77\_1433\_ss\_1lag | 1 (omitted)

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

sp77\_1437\_ss\_1lag | .0518719 .0481059 -3.19 0.001 .0084242 .3193993

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

sp77\_1605\_ss\_1lag | 1.011865 .0552483 0.22 0.829 .9091729 1.126156

sp77\_1606\_ss\_1lag | 1.059471 .0687362 0.89 0.373 .9329641 1.203132

sp77\_1710\_ss\_1lag | .9547738 .1029332 -0.43 0.668 .7729178 1.179418

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

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

sp77\_1915\_ss\_1lag | 1 (omitted)

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

sp77\_200\_ss\_1lag | .892294 .1005097 -1.01 0.312 .7155286 1.112728

sp77\_202\_ss\_1lag | .5432684 .0629088 -5.27 0.000 .4329602 .6816806

sp77\_203\_ss\_1lag | .1382363 .1272018 -2.15 0.032 .0227702 .8392243

sp77\_204\_ss\_1lag | .9343006 .1749648 -0.36 0.717 .6472673 1.34862

sp77\_205\_ss\_1lag | 1.075423 .0597026 1.31 0.190 .9645497 1.199042

sp77\_206\_ss\_1lag | 1.769704 .8293849 1.22 0.223 .7062829 4.434274

sp77\_207\_ss\_1lag | 1.528346 .3382517 1.92 0.055 .9904549 2.358351

sp77\_208\_ss\_1lag | 1.106974 .1382821 0.81 0.416 .866575 1.414063

sp77\_210\_ss\_1lag | 2.978524 1.485189 2.19 0.029 1.120893 7.914762

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

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

sp77\_400\_ss\_1lag | 1.098078 .0568124 1.81 0.071 .9921876 1.21527

sp77\_401\_ss\_1lag | .7692762 .229442 -0.88 0.379 .4287513 1.380254

sp77\_402\_ss\_1lag | 1.358708 .4579664 0.91 0.363 .7018106 2.630463

sp77\_403\_1\_ss\_1lag | 2.762002 2.222839 1.26 0.207 .570405 13.3741

sp77\_403\_ss\_1lag | 1.845739 1.963784 0.58 0.565 .2293662 14.85289

sp77\_404\_ss\_1lag | 1.051299 .0366275 1.44 0.151 .9819065 1.125595

sp77\_405\_ss\_1lag | 2.136732 .9406945 1.72 0.085 .9015904 5.063966

sp77\_408\_ss\_1lag | .6564257 .4281036 -0.65 0.519 .1828329 2.356768

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

sp77\_410\_ss\_1lag | .9558711 .0602472 -0.72 0.474 .8447911 1.081557

sp77\_411\_ss\_1lag | 1 (omitted)

sp77\_412\_ss\_1lag | 1 (omitted)

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

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

sp77\_501\_ss\_1lag | 1.130867 .54462 0.26 0.798 .4400246 2.906337

sp77\_502\_1\_ss\_1lag | 1 (omitted)

sp77\_502\_2\_ss\_1lag | .9496513 .5872289 -0.08 0.933 .2826266 3.190916

sp77\_502\_ss\_1lag | 1.000043 .0762496 0.00 1.000 .8612272 1.161234

sp77\_503\_1\_ss\_1lag | 1 (omitted)

sp77\_503\_ss\_1lag | .2849187 .1865633 -1.92 0.055 .0789512 1.028214

sp77\_504\_ss\_1lag | 1.03875 .2168803 0.18 0.856 .6899045 1.563987

sp77\_505\_ss\_1lag | 1.090637 .1601275 0.59 0.555 .8179124 1.4543

sp77\_506\_1\_ss\_1lag | .5070499 .2834409 -1.21 0.224 .1695231 1.516605

sp77\_506\_ss\_1lag | .9311283 .1966713 -0.34 0.735 .6154889 1.408636

sp77\_507\_ss\_1lag | .8410323 .5558656 -0.26 0.793 .2302639 3.071846

sp77\_508\_1\_ss\_1lag | .5250016 .6504822 -0.52 0.603 .0462928 5.953986

sp77\_508\_ss\_1lag | 1.985006 1.640682 0.83 0.407 .3928363 10.03026

sp77\_509\_ss\_1lag | .4975454 .1027158 -3.38 0.001 .3319757 .7456915

sp77\_510\_ss\_1lag | .3996283 .3738174 -0.98 0.327 .0638898 2.49966

sp77\_511\_ss\_1lag | .1788476 .2084841 -1.48 0.140 .0182067 1.756854

sp77\_512\_ss\_1lag | .9156026 .1515944 -0.53 0.594 .661874 1.266598

sp77\_513\_ss\_1lag | .9297078 .1848316 -0.37 0.714 .6296837 1.372684

sp77\_514\_ss\_1lag | 1 (omitted)

sp77\_515\_ss\_1lag | 1 (omitted)

sp77\_516\_ss\_1lag | .8292182 .0906664 -1.71 0.087 .669266 1.027398

sp77\_600\_ss\_1lag | 1.699557 1.330562 0.68 0.498 .3663877 7.883713

sp77\_601\_ss\_1lag | .4564978 .3270384 -1.09 0.274 .1121067 1.858856

sp77\_602\_ss\_1lag | 1.383976 1.925687 0.23 0.815 .0905218 21.15944

sp77\_603\_ss\_1lag | 4.405041 5.113697 1.28 0.202 .4527019 42.8635

sp77\_604\_ss\_1lag | 1.159449 .3986655 0.43 0.667 .5909814 2.274726

sp77\_605\_ss\_1lag | .6640376 1.029324 -0.26 0.792 .0318234 13.85604

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

sp77\_700\_1\_ss\_1lag | 1 (omitted)

sp77\_700\_ss\_1lag | .4306507 .3029549 -1.20 0.231 .1084727 1.709739

sp77\_701\_1\_ss\_1lag | .9957562 .5265272 -0.01 0.994 .3532338 2.807009

sp77\_701\_2\_ss\_1lag | .7368357 .2559663 -0.88 0.379 .3729712 1.455681

sp77\_701\_3\_ss\_1lag | 1 (omitted)

sp77\_701\_4\_ss\_1lag | 1.927033 1.341503 0.94 0.346 .4924086 7.541412

sp77\_701\_ss\_1lag | .809633 .1156649 -1.48 0.139 .6119061 1.071252

sp77\_704\_1\_ss\_1lag | 1.542657 .9565923 0.70 0.484 .4575562 5.201089

sp77\_704\_8\_ss\_1lag | 1 (omitted)

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

sp77\_704\_ss\_1lag | 1.224248 1.601255 0.15 0.877 .0943063 15.89271

sp77\_705\_ss\_1lag | 2.78219 1.403966 2.03 0.043 1.03478 7.480411

sp77\_800\_1\_ss\_1lag | 1 (omitted)

sp77\_800\_2\_ss\_1lag | 1.480552 1.457169 0.40 0.690 .2151127 10.19017

sp77\_800\_ss\_1lag | 2.911091 2.250231 1.38 0.167 .6398667 13.24409

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

sp77\_802\_ss\_1lag | .0493173 .0430502 -3.45 0.001 .0089118 .2729188

sp77\_803\_ss\_1lag | 5.126236 5.074018 1.65 0.099 .7366611 35.67217

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

sp77\_805\_ss\_1lag | 1 (omitted)

sp77\_807\_1\_ss\_1lag | .5170751 .652988 -0.52 0.601 .0435125 6.144591

sp77\_807\_2\_ss\_1lag | .3649273 .3156612 -1.17 0.244 .066976 1.988353

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

sp77\_807\_ss\_1lag | .7312903 .4620701 -0.50 0.620 .2119596 2.523054

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

sp77\_809\_ss\_1lag | .6247061 .1869874 -1.57 0.116 .347451 1.123202

sp77\_810\_ss\_1lag | 1 (omitted)

sp77\_900\_1\_ss\_1lag | .8881289 .8976178 -0.12 0.907 .1225124 6.43831

sp77\_900\_2\_ss\_1lag | 1 (omitted)

sp77\_900\_ss\_1lag | .8264016 .4622564 -0.34 0.733 .2760976 2.473544

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

sp77\_901\_ss\_1lag | 1.251228 1.257819 0.22 0.824 .1744421 8.974739

sp77\_902\_3\_ss\_1lag | 1 (omitted)

sp77\_902\_ss\_1lag | 1.489455 1.037362 0.57 0.567 .3803564 5.832629

sp77\_903\_ss\_1lag | 1 (omitted)

sp77\_904\_ss\_1lag | 1.189061 .1997851 1.03 0.303 .8554325 1.652808

mine\_time | 1.000517 .0147676 0.04 0.972 .9719875 1.029883

onsite\_insp\_hours | 1.000989 .0001887 5.24 0.000 1.000619 1.001359

|

state |

1 | 1.322674 .5055101 0.73 0.464 .6253654 2.797511

2 | 2.104563 .3454783 4.53 0.000 1.525567 2.903303

3 | .8172868 .2784624 -0.59 0.554 .4191378 1.593647

4 | 1.909858 .5814817 2.13 0.034 1.051578 3.468652

5 | .9193735 .2832219 -0.27 0.785 .5026564 1.681562

6 | .6584965 .0655853 -4.19 0.000 .5417201 .8004459

7 | 1.067433 .3612754 0.19 0.847 .5498567 2.072201

8 | 1.375338 .1785669 2.45 0.014 1.066335 1.773883

9 | 2.860027 .5176665 5.81 0.000 2.005867 4.077914

10 | .6206699 .2527018 -1.17 0.241 .279447 1.378548

11 | .4739437 .2084469 -1.70 0.090 .2001506 1.122269

12 | .9769661 .1710721 -0.13 0.894 .6931536 1.376986

13 | 1.827846 .6819949 1.62 0.106 .8797202 3.797824

14 | .8828221 .3030593 -0.36 0.717 .4504729 1.730126

15 | .508402 .059849 -5.75 0.000 .4036491 .6403398

17 | 1 (empty)

|

time |

2000 | 1.014197 .1482995 0.10 0.923 .7614766 1.350791

2002 | .7046343 .1120486 -2.20 0.028 .5159511 .962319

2003 | .758289 .1326753 -1.58 0.114 .5381494 1.068481

2004 | .4544167 .0792466 -4.52 0.000 .322858 .639583

2005 | .4762852 .0768457 -4.60 0.000 .3471609 .6534363

2006 | .5127975 .0843734 -4.06 0.000 .3714438 .7079438

2007 | .5226685 .0935338 -3.63 0.000 .3680443 .7422541

2008 | .3706362 .0661681 -5.56 0.000 .2612079 .5259074

2009 | .1915957 .0368888 -8.58 0.000 .1313712 .2794289

2010 | .2922626 .0580663 -6.19 0.000 .1979966 .4314086

2011 | .3469662 .0659187 -5.57 0.000 .2390953 .5035046

2012 | .2830067 .0586651 -6.09 0.000 .1885165 .4248583

2013 | .2133281 .0471617 -6.99 0.000 .1383147 .3290244

2014 | .1753718 .0404201 -7.55 0.000 .1116279 .2755161

2015 | .2362575 .0554889 -6.14 0.000 .1490964 .3743726

|

\_cons | .000023 3.16e-06 -77.72 0.000 .0000176 .0000301

lnhours | 1 (offset)

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

(est1 stored)

**. lfit**

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

number of observations = 5987

number of covariate patterns = 5972

Pearson chi2(5728) = 5455.91

Prob > chi2 = 0.9950

**. linktest**

Iteration 0: log likelihood = -4135.0578

Iteration 1: log likelihood = -2726.9104

Iteration 2: log likelihood = -2721.7635

Iteration 3: log likelihood = -2721.0363

Iteration 4: log likelihood = -2721.0329

Iteration 5: log likelihood = -2721.0329

Logistic regression Number of obs = 5,987

LR chi2(2) = 2828.05

Prob > chi2 = 0.0000

Log likelihood = -2721.0329 Pseudo R2 = 0.3420

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

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

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

\_hat | 1.102525 .0307602 35.84 0.000 1.042236 1.162814

\_hatsq | -.0197657 .0154261 -1.28 0.200 -.0500003 .0104689

\_cons | .0215629 .0382753 0.56 0.573 -.0534552 .096581

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

**. estat classification**

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 2545 680 | 3225

- | 659 2103 | 2762

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

Total | 3204 2783 | 5987

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

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

Sensitivity Pr( +| D) 79.43%

Specificity Pr( -|~D) 75.57%

Positive predictive value Pr( D| +) 78.91%

Negative predictive value Pr(~D| -) 76.14%

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

False + rate for true ~D Pr( +|~D) 24.43%

False - rate for true D Pr( -| D) 20.57%

False + rate for classified + Pr(~D| +) 21.09%

False - rate for classified - Pr( D| -) 23.86%

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

Correctly classified 77.63%

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

**. summ MR\_indicator spbssv2\_yhat**

Variable | Obs Mean Std. Dev. Min Max

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

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

spbssv2\_yhat | 5,987 .5351595 .3017347 .0003564 .9999997