. // Model SP.B.SSV.3

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

note: sp47\_44\_ss\_c\_4lag != 0 predicts success perfectly

sp47\_44\_ss\_c\_4lag dropped and 2 obs not used

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

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

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

sp72\_610\_ss\_c\_4lag dropped and 2 obs not used

note: sp75\_1001\_1\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_1001\_1\_ss\_c\_4lag dropped and 4 obs not used

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

sp75\_1003\_1\_ss\_c\_4lag dropped and 9 obs not used

note: sp75\_1101\_20\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_1101\_20\_ss\_c\_4lag dropped and 2 obs not used

note: sp75\_1106\_6\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_1106\_6\_ss\_c\_4lag dropped and 1 obs not used

note: sp75\_1107\_14\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_1107\_14\_ss\_c\_4lag dropped and 2 obs not used

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

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

note: sp75\_1400\_2\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_1400\_2\_ss\_c\_4lag dropped and 2 obs not used

note: sp75\_1400\_4\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_1400\_4\_ss\_c\_4lag dropped and 2 obs not used

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

sp75\_1403\_11\_ss\_c\_4lag dropped and 2 obs not used

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

sp75\_1403\_3\_ss\_c\_4lag dropped and 2 obs not used

note: sp75\_1403\_4\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_1403\_4\_ss\_c\_4lag dropped and 2 obs not used

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

sp75\_1403\_9\_ss\_c\_4lag dropped and 14 obs not used

note: sp75\_1404\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_1404\_ss\_c\_4lag dropped and 3 obs not used

note: sp75\_1431\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_1431\_ss\_c\_4lag dropped and 2 obs not used

note: sp75\_1432\_ss\_c\_4lag != 0 predicts failure perfectly

sp75\_1432\_ss\_c\_4lag dropped and 3 obs not used

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

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

note: sp75\_150\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_150\_ss\_c\_4lag dropped and 4 obs not used

note: sp75\_151\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_151\_ss\_c\_4lag dropped and 4 obs not used

note: sp75\_153\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_153\_ss\_c\_4lag dropped and 2 obs not used

note: sp75\_155\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_155\_ss\_c\_4lag dropped and 2 obs not used

note: sp75\_1712\_6\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_1712\_6\_ss\_c\_4lag dropped and 4 obs not used

note: sp75\_1721\_ss\_c\_4lag != 0 predicts failure perfectly

sp75\_1721\_ss\_c\_4lag dropped and 3 obs not used

note: sp75\_1727\_ss\_c\_4lag != 0 predicts success perfectly

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

note: sp75\_1729\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_1729\_ss\_c\_4lag dropped and 28 obs not used

note: sp75\_1915\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_1915\_ss\_c\_4lag dropped and 11 obs not used

note: sp75\_513\_1\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_513\_1\_ss\_c\_4lag dropped and 3 obs not used

note: sp75\_516\_1\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_516\_1\_ss\_c\_4lag dropped and 5 obs not used

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

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

note: sp75\_600\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_600\_ss\_c\_4lag dropped and 2 obs not used

note: sp75\_701\_3\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_701\_3\_ss\_c\_4lag dropped and 27 obs not used

note: sp75\_701\_4\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_701\_4\_ss\_c\_4lag dropped and 5 obs not used

note: sp75\_800\_2\_ss\_c\_4lag != 0 predicts failure perfectly

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

note: sp75\_800\_4\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_800\_4\_ss\_c\_4lag dropped and 3 obs not used

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

sp75\_803\_2\_ss\_c\_4lag dropped and 3 obs not used

note: sp75\_806\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_806\_ss\_c\_4lag dropped and 4 obs not used

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

sp75\_814\_ss\_c\_4lag dropped and 2 obs not used

note: sp75\_819\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_819\_ss\_c\_4lag dropped and 2 obs not used

note: sp75\_827\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_827\_ss\_c\_4lag dropped and 3 obs not used

note: sp75\_831\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_831\_ss\_c\_4lag dropped and 1 obs not used

note: sp75\_902\_1\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_902\_1\_ss\_c\_4lag dropped and 9 obs not used

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

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

note: sp77\_1106\_ss\_c\_4lag != 0 predicts failure perfectly

sp77\_1106\_ss\_c\_4lag dropped and 1 obs not used

note: sp77\_1433\_ss\_c\_4lag != 0 predicts success perfectly

sp77\_1433\_ss\_c\_4lag dropped and 2 obs not used

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

sp77\_1434\_ss\_c\_4lag dropped and 18 obs not used

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

sp77\_1438\_ss\_c\_4lag dropped and 1 obs not used

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

sp77\_1906\_ss\_c\_4lag dropped and 2 obs not used

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

sp77\_1916\_ss\_c\_4lag dropped and 10 obs not used

note: sp75\_601\_2\_ss\_c\_4lag != 0 predicts failure perfectly

sp75\_601\_2\_ss\_c\_4lag dropped and 3 obs not used

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

sp77\_216\_ss\_c\_4lag dropped and 5 obs not used

note: sp77\_315\_ss\_c\_4lag != 0 predicts success perfectly

sp77\_315\_ss\_c\_4lag dropped and 2 obs not used

note: sp77\_411\_ss\_c\_4lag != 0 predicts success perfectly

sp77\_411\_ss\_c\_4lag dropped and 1 obs not used

note: sp77\_412\_ss\_c\_4lag != 0 predicts success perfectly

sp77\_412\_ss\_c\_4lag dropped and 19 obs not used

note: sp77\_413\_ss\_c\_4lag != 0 predicts success perfectly

sp77\_413\_ss\_c\_4lag dropped and 1 obs not used

note: sp77\_502\_1\_ss\_c\_4lag != 0 predicts success perfectly

sp77\_502\_1\_ss\_c\_4lag dropped and 1 obs not used

note: sp77\_514\_ss\_c\_4lag != 0 predicts success perfectly

sp77\_514\_ss\_c\_4lag dropped and 2 obs not used

note: sp77\_800\_1\_ss\_c\_4lag != 0 predicts success perfectly

sp77\_800\_1\_ss\_c\_4lag dropped and 8 obs not used

note: sp77\_805\_ss\_c\_4lag != 0 predicts success perfectly

sp77\_805\_ss\_c\_4lag dropped and 2 obs not used

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

sp77\_807\_3\_ss\_c\_4lag dropped and 7 obs not used

note: sp77\_810\_ss\_c\_4lag != 0 predicts success perfectly

sp77\_810\_ss\_c\_4lag dropped and 3 obs not used

note: sp77\_900\_2\_ss\_c\_4lag != 0 predicts failure perfectly

sp77\_900\_2\_ss\_c\_4lag dropped and 1 obs not used

note: sp77\_902\_3\_ss\_c\_4lag != 0 predicts failure perfectly

sp77\_902\_3\_ss\_c\_4lag dropped and 3 obs not used

note: sp77\_903\_ss\_c\_4lag != 0 predicts success perfectly

sp77\_903\_ss\_c\_4lag dropped and 9 obs not used

note: 17.state != 0 predicts success perfectly

17.state dropped and 11 obs not used

note: sp77\_1802\_ss\_c\_4lag omitted because of collinearity

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

note: sp77\_701\_3\_ss\_c\_4lag omitted because of collinearity

note: sp77\_704\_8\_ss\_c\_4lag omitted because of collinearity

note: sp77\_801\_1\_ss\_c\_4lag omitted because of collinearity

note: sp77\_901\_1\_ss\_c\_4lag omitted because of collinearity

Iteration 0: log pseudolikelihood = -3016.8666

Iteration 1: log pseudolikelihood = -2745.7274

Iteration 2: log pseudolikelihood = -2720.0442

Iteration 3: log pseudolikelihood = -2717.736

Iteration 4: log pseudolikelihood = -2717.6679

Iteration 5: log pseudolikelihood = -2717.6661

Iteration 6: log pseudolikelihood = -2717.6661

Logistic regression Number of obs = 5,941

Wald chi2(255) = .

Log pseudolikelihood = -2717.6661 Prob > chi2 = .

(Std. Err. adjusted for 1,231 clusters in mineid)

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| Robust

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

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

sp47\_41\_ss\_c\_4lag | .4519099 .1447002 -2.48 0.013 .2412679 .8464555

sp47\_44\_ss\_c\_4lag | 1 (omitted)

sp48\_11\_ss\_c\_4lag | 1.005595 .1114139 0.05 0.960 .8093105 1.249486

sp48\_25\_ss\_c\_4lag | 1.186926 .1976166 1.03 0.303 .8564529 1.644917

sp48\_26\_ss\_c\_4lag | 1.274434 .1114931 2.77 0.006 1.073619 1.512809

sp48\_27\_ss\_c\_4lag | .901699 .0887584 -1.05 0.293 .7434878 1.093577

sp48\_28\_ss\_c\_4lag | .8328927 .1108489 -1.37 0.169 .6416578 1.081122

sp48\_4\_ss\_c\_4lag | 2.442973 1.771009 1.23 0.218 .5899954 10.11553

sp48\_5\_ss\_c\_4lag | 1.122281 .1514806 0.85 0.393 .86141 1.462154

sp48\_6\_ss\_c\_4lag | .7906188 .0735051 -2.53 0.012 .6589152 .9486471

sp48\_7\_ss\_c\_4lag | 1.147084 .1197047 1.31 0.189 .9349047 1.407417

sp48\_8\_ss\_c\_4lag | 1.126175 .1450814 0.92 0.356 .8748798 1.449651

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

sp72\_503\_ss\_c\_4lag | .7680858 .1304483 -1.55 0.120 .5506117 1.071455

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

sp72\_620\_ss\_c\_4lag | 1.357508 .7145601 0.58 0.561 .4838269 3.808858

sp72\_630\_ss\_c\_4lag | 1.006516 .0134787 0.49 0.628 .9804422 1.033284

sp75\_100\_ss\_c\_4lag | 1.07901 .3132812 0.26 0.793 .6107824 1.906182

sp75\_1001\_1\_ss\_c\_4lag | 1 (omitted)

sp75\_1001\_ss\_c\_4lag | .8459671 .5126473 -0.28 0.783 .2579492 2.774424

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

sp75\_1100\_2\_ss\_c\_4lag | 1.011161 .0219813 0.51 0.610 .9689832 1.055174

sp75\_1101\_20\_ss\_c\_4lag | 1 (omitted)

sp75\_1102\_ss\_c\_4lag | .9919205 .0526512 -0.15 0.879 .8939126 1.100674

sp75\_1103\_4\_ss\_c\_4lag | 1.030008 .0370317 0.82 0.411 .9599258 1.105208

sp75\_1104\_ss\_c\_4lag | .8246617 .1354305 -1.17 0.240 .5977048 1.137797

sp75\_1106\_2\_ss\_c\_4lag | .9481209 .0743087 -0.68 0.497 .8131133 1.105545

sp75\_1106\_3\_ss\_c\_4lag | 1.072854 .0468245 1.61 0.107 .9848955 1.168668

sp75\_1106\_4\_ss\_c\_4lag | .7639326 .1636059 -1.26 0.209 .5020643 1.162387

sp75\_1106\_5\_ss\_c\_4lag | .8702183 .0776685 -1.56 0.119 .7305619 1.036572

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

sp75\_1106\_ss\_c\_4lag | 1.678815 .5753211 1.51 0.131 .8576313 3.286284

sp75\_1107\_14\_ss\_c\_4lag | 1 (omitted)

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

sp75\_1400\_2\_ss\_c\_4lag | 1 (omitted)

sp75\_1400\_3\_ss\_c\_4lag | .9440136 .1834795 -0.30 0.767 .6449675 1.381716

sp75\_1400\_4\_ss\_c\_4lag | 1 (omitted)

sp75\_1400\_ss\_c\_4lag | 1.381262 .2874684 1.55 0.121 .9185946 2.07696

sp75\_1401\_ss\_c\_4lag | .5718337 .2317368 -1.38 0.168 .2584155 1.26538

sp75\_1403\_10\_ss\_c\_4lag | 1.118698 .0737618 1.70 0.089 .9830791 1.273025

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

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

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

sp75\_1403\_5\_ss\_c\_4lag | .9897594 .0409806 -0.25 0.804 .9126117 1.073429

sp75\_1403\_6\_ss\_c\_4lag | .9672428 .0348784 -0.92 0.356 .9012422 1.038077

sp75\_1403\_7\_ss\_c\_4lag | 1.196443 .157056 1.37 0.172 .9250299 1.547493

sp75\_1403\_8\_ss\_c\_4lag | .9949803 .0471803 -0.11 0.915 .9066757 1.091885

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

sp75\_1404\_1\_ss\_c\_4lag | .7046594 .2629885 -0.94 0.348 .3390777 1.464398

sp75\_1404\_ss\_c\_4lag | 1 (omitted)

sp75\_1405\_1\_ss\_c\_4lag | 1.248895 .2590683 1.07 0.284 .8316766 1.875416

sp75\_1405\_ss\_c\_4lag | 1.050591 .0483454 1.07 0.284 .959983 1.149751

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

sp75\_1432\_ss\_c\_4lag | 1 (omitted)

sp75\_1433\_ss\_c\_4lag | .8692151 .1816979 -0.67 0.503 .5770252 1.309362

sp75\_1434\_ss\_c\_4lag | .6784243 .1353345 -1.94 0.052 .4588816 1.003003

sp75\_1435\_ss\_c\_4lag | .1613383 .1472792 -2.00 0.046 .0269594 .9655272

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

sp75\_150\_ss\_c\_4lag | 1 (omitted)

sp75\_151\_ss\_c\_4lag | 1 (omitted)

sp75\_153\_ss\_c\_4lag | 1 (omitted)

sp75\_155\_ss\_c\_4lag | 1 (omitted)

sp75\_156\_ss\_c\_4lag | .9484257 .1896104 -0.26 0.791 .6409588 1.403384

sp75\_1600\_2\_ss\_c\_4lag | .9329224 .1634588 -0.40 0.692 .6617672 1.315182

sp75\_1712\_10\_ss\_c\_4lag | 1.127903 .6276614 0.22 0.829 .3789575 3.357012

sp75\_1712\_6\_ss\_c\_4lag | 1 (omitted)

sp75\_1720\_ss\_c\_4lag | 1.042836 .0441475 0.99 0.322 .9598014 1.133055

sp75\_1721\_ss\_c\_4lag | 1 (omitted)

sp75\_1725\_ss\_c\_4lag | 1.007691 .0070472 1.10 0.273 .9939732 1.021599

sp75\_1726\_ss\_c\_4lag | 1.17674 .1790902 1.07 0.285 .873242 1.58572

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

sp75\_1728\_ss\_c\_4lag | 1.218333 .4191933 0.57 0.566 .6207149 2.391332

sp75\_1729\_ss\_c\_4lag | 1 (omitted)

sp75\_1730\_ss\_c\_4lag | .8345572 .1746184 -0.86 0.387 .5538028 1.257642

sp75\_1731\_ss\_c\_4lag | .9805387 .00582 -3.31 0.001 .9691977 .9920124

sp75\_1903\_ss\_c\_4lag | 1.006748 .2119563 0.03 0.975 .666366 1.521

sp75\_1909\_ss\_c\_4lag | .9858369 .0282666 -0.50 0.619 .9319633 1.042825

sp75\_1910\_ss\_c\_4lag | .9840641 .0510633 -0.31 0.757 .8889029 1.089413

sp75\_1911\_ss\_c\_4lag | 1.067118 .0587283 1.18 0.238 .9580033 1.188661

sp75\_1912\_ss\_c\_4lag | 1.219101 .5057703 0.48 0.633 .5406302 2.749027

sp75\_1913\_ss\_c\_4lag | 1.171385 .1859053 1.00 0.319 .8582415 1.598785

sp75\_1914\_ss\_c\_4lag | .9939705 .0281409 -0.21 0.831 .9403178 1.050685

sp75\_1915\_ss\_c\_4lag | 1 (omitted)

sp75\_202\_ss\_c\_4lag | 1.008299 .0032575 2.56 0.011 1.001934 1.014704

sp75\_208\_ss\_c\_4lag | .9894288 .0209952 -0.50 0.616 .9491229 1.031446

sp75\_211\_ss\_c\_4lag | .9664524 .0216558 -1.52 0.128 .9249263 1.009843

sp75\_212\_ss\_c\_4lag | 1.016806 .0956652 0.18 0.859 .8455783 1.222708

sp75\_214\_ss\_c\_4lag | 1.060907 .1291863 0.49 0.627 .8356544 1.346876

sp75\_312\_ss\_c\_4lag | .8491785 .104102 -1.33 0.182 .667804 1.079814

sp75\_320\_ss\_c\_4lag | .9769581 .1043547 -0.22 0.827 .7924175 1.204475

sp75\_324\_ss\_c\_4lag | 1.021088 .1329285 0.16 0.873 .7911362 1.317879

sp75\_337\_ss\_c\_4lag | .8734815 .0597214 -1.98 0.048 .7639337 .9987384

sp75\_340\_ss\_c\_4lag | 1.020502 .0294911 0.70 0.483 .9643069 1.079972

sp75\_342\_ss\_c\_4lag | .9979518 .0170967 -0.12 0.905 .9649992 1.03203

sp75\_344\_ss\_c\_4lag | .723393 .120893 -1.94 0.053 .5213411 1.003752

sp75\_352\_ss\_c\_4lag | 1.046911 .2463347 0.19 0.846 .6601228 1.660331

sp75\_382\_ss\_c\_4lag | 1.614491 .61152 1.26 0.206 .7684692 3.391914

sp75\_503\_ss\_c\_4lag | 1.022644 .0087733 2.61 0.009 1.005592 1.039984

sp75\_504\_ss\_c\_4lag | .8182735 .1957932 -0.84 0.402 .5119487 1.307888

sp75\_505\_ss\_c\_4lag | 1.104817 .5771155 0.19 0.849 .3968757 3.075576

sp75\_506\_1\_ss\_c\_4lag | 1.167836 .3212817 0.56 0.573 .6810971 2.002418

sp75\_506\_ss\_c\_4lag | 1.331114 .40235 0.95 0.344 .736082 2.407156

sp75\_507\_ss\_c\_4lag | 1.125985 .1233969 1.08 0.279 .9083413 1.395776

sp75\_511\_1\_ss\_c\_4lag | .4628675 .282094 -1.26 0.206 .1401822 1.528341

sp75\_511\_ss\_c\_4lag | 1.000822 .0599248 0.01 0.989 .8900013 1.125442

sp75\_512\_1\_ss\_c\_4lag | 1.429665 .6950498 0.74 0.462 .5513303 3.707291

sp75\_512\_2\_ss\_c\_4lag | 1.010052 .081092 0.12 0.901 .8629882 1.182176

sp75\_512\_ss\_c\_4lag | 1.002972 .0101881 0.29 0.770 .9832009 1.02314

sp75\_513\_1\_ss\_c\_4lag | 1 (omitted)

sp75\_513\_ss\_c\_4lag | .7864255 .1410403 -1.34 0.180 .5533503 1.117674

sp75\_514\_ss\_c\_4lag | .985164 .038101 -0.39 0.699 .9132476 1.062744

sp75\_515\_ss\_c\_4lag | .9602739 .0284804 -1.37 0.172 .9060449 1.017749

sp75\_516\_1\_ss\_c\_4lag | 1 (omitted)

sp75\_516\_2\_ss\_c\_4lag | 2.462241 .9927815 2.23 0.025 1.117182 5.426715

sp75\_516\_ss\_c\_4lag | 1.037827 .0571036 0.67 0.500 .9317298 1.156006

sp75\_517\_1\_ss\_c\_4lag | 1.346976 .5277679 0.76 0.447 .624949 2.903186

sp75\_517\_ss\_c\_4lag | .9957423 .0054401 -0.78 0.435 .9851368 1.006462

sp75\_518\_1\_ss\_c\_4lag | .9317786 .0798794 -0.82 0.410 .787664 1.102261

sp75\_518\_ss\_c\_4lag | 1.029042 .0342298 0.86 0.389 .9640927 1.098366

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

sp75\_520\_ss\_c\_4lag | .9528682 .0478874 -0.96 0.337 .863485 1.051504

sp75\_523\_1\_ss\_c\_4lag | .9972337 .0341936 -0.08 0.936 .9324179 1.066555

sp75\_523\_2\_ss\_c\_4lag | 1.045453 .0299178 1.55 0.120 .9884296 1.105767

sp75\_523\_ss\_c\_4lag | .9610536 .0260326 -1.47 0.143 .9113614 1.013455

sp75\_600\_1\_ss\_c\_4lag | .8726947 .108702 -1.09 0.274 .6836558 1.114005

sp75\_600\_ss\_c\_4lag | 1 (omitted)

sp75\_601\_1\_ss\_c\_4lag | .9790355 .0262661 -0.79 0.430 .9288849 1.031894

sp75\_601\_2\_ss\_c\_4lag | 1 (omitted)

sp75\_601\_3\_ss\_c\_4lag | .7423676 .2058604 -1.07 0.283 .4311007 1.278378

sp75\_601\_ss\_c\_4lag | .96321 .0286238 -1.26 0.207 .908711 1.020977

sp75\_602\_ss\_c\_4lag | .8697247 .0639116 -1.90 0.058 .7530631 1.004459

sp75\_603\_ss\_c\_4lag | 1.112786 .1233173 0.96 0.335 .895535 1.38274

sp75\_604\_ss\_c\_4lag | 1.012841 .0096738 1.34 0.182 .9940572 1.03198

sp75\_605\_ss\_c\_4lag | 1.010945 .0388115 0.28 0.777 .9376677 1.08995

sp75\_606\_ss\_c\_4lag | .9755211 .0161898 -1.49 0.135 .9443003 1.007774

sp75\_607\_ss\_c\_4lag | 1.030669 .065064 0.48 0.632 .910719 1.166416

sp75\_700\_1\_ss\_c\_4lag | .7121688 .1554866 -1.55 0.120 .4642389 1.092507

sp75\_700\_ss\_c\_4lag | .9821714 .1144174 -0.15 0.877 .7816766 1.234092

sp75\_701\_1\_ss\_c\_4lag | .9292347 .0762584 -0.89 0.371 .7911719 1.09139

sp75\_701\_2\_ss\_c\_4lag | 1.141123 .1543274 0.98 0.329 .875416 1.487478

sp75\_701\_3\_ss\_c\_4lag | 1 (omitted)

sp75\_701\_4\_ss\_c\_4lag | 1 (omitted)

sp75\_701\_ss\_c\_4lag | 1.064338 .0256211 2.59 0.010 1.015288 1.115758

sp75\_703\_2\_ss\_c\_4lag | 3.882008 1.403967 3.75 0.000 1.910781 7.886819

sp75\_703\_3\_ss\_c\_4lag | 1.00762 .2374826 0.03 0.974 .6348628 1.59924

sp75\_703\_ss\_c\_4lag | 1.001711 .0565033 0.03 0.976 .8968691 1.11881

sp75\_704\_ss\_c\_4lag | .7593355 .1680418 -1.24 0.213 .4921095 1.171671

sp75\_705\_1\_ss\_c\_4lag | 1.930911 .9345119 1.36 0.174 .7478292 4.985655

sp75\_705\_8\_ss\_c\_4lag | .9316315 .1985457 -0.33 0.740 .6135351 1.41465

sp75\_705\_ss\_c\_4lag | 1.535601 .5932489 1.11 0.267 .7201677 3.274336

sp75\_706\_ss\_c\_4lag | .7391002 .1086126 -2.06 0.040 .554137 .9858016

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

sp75\_800\_3\_ss\_c\_4lag | .7057761 .271442 -0.91 0.365 .3321194 1.499822

sp75\_800\_4\_ss\_c\_4lag | 1 (omitted)

sp75\_800\_ss\_c\_4lag | .9161329 .1015069 -0.79 0.429 .737303 1.138337

sp75\_801\_ss\_c\_4lag | .9514024 .322237 -0.15 0.883 .489852 1.847837

sp75\_802\_ss\_c\_4lag | 1.065097 .3712595 0.18 0.856 .5378822 2.109072

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

sp75\_803\_ss\_c\_4lag | 1.084221 .1328515 0.66 0.509 .8527441 1.378533

sp75\_804\_ss\_c\_4lag | .9467701 .1179742 -0.44 0.661 .7416155 1.208677

sp75\_805\_ss\_c\_4lag | .9808647 .165495 -0.11 0.909 .7046791 1.365296

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

sp75\_807\_ss\_c\_4lag | 1.002429 .034627 0.07 0.944 .9368075 1.072647

sp75\_808\_ss\_c\_4lag | 1.024421 .177742 0.14 0.889 .7291063 1.439349

sp75\_809\_ss\_c\_4lag | .9678492 .0601897 -0.53 0.599 .8567857 1.09331

sp75\_810\_ss\_c\_4lag | 1.005118 .12843 0.04 0.968 .7824449 1.29116

sp75\_811\_ss\_c\_4lag | 1.240305 .2715009 0.98 0.325 .8076102 1.904826

sp75\_812\_ss\_c\_4lag | .4135952 .089399 -4.08 0.000 .2707618 .6317766

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

sp75\_815\_ss\_c\_4lag | 1.407096 1.197718 0.40 0.688 .2653276 7.462172

sp75\_816\_ss\_c\_4lag | .9267515 .0936625 -0.75 0.452 .7602147 1.129771

sp75\_818\_ss\_c\_4lag | 1.384954 .1104249 4.08 0.000 1.184589 1.61921

sp75\_819\_ss\_c\_4lag | 1 (omitted)

sp75\_820\_ss\_c\_4lag | .9584376 .2269084 -0.18 0.858 .6026198 1.524348

sp75\_821\_ss\_c\_4lag | .0700721 .0708206 -2.63 0.009 .0096661 .5079717

sp75\_825\_ss\_c\_4lag | .9467515 .6418182 -0.08 0.936 .2507222 3.575027

sp75\_827\_ss\_c\_4lag | 1 (omitted)

sp75\_831\_ss\_c\_4lag | 1 (omitted)

sp75\_900\_2\_ss\_c\_4lag | 1.323423 .606248 0.61 0.541 .539226 3.248077

sp75\_900\_3\_ss\_c\_4lag | .6167599 .1197011 -2.49 0.013 .4216135 .902231

sp75\_900\_4\_ss\_c\_4lag | 1.212192 .2743349 0.85 0.395 .7779171 1.888902

sp75\_900\_ss\_c\_4lag | .9602818 .0271086 -1.44 0.151 .9085931 1.014911

sp75\_901\_ss\_c\_4lag | .9806084 .1289456 -0.15 0.882 .7578207 1.268892

sp75\_902\_1\_ss\_c\_4lag | 1 (omitted)

sp75\_902\_2\_ss\_c\_4lag | 1.375849 .280515 1.56 0.118 .9226211 2.051719

sp75\_902\_4\_ss\_c\_4lag | .8484259 .1309731 -1.06 0.287 .6269203 1.148195

sp75\_902\_ss\_c\_4lag | 1.051666 .0373775 1.42 0.156 .9809011 1.127537

sp75\_903\_ss\_c\_4lag | 1.042746 .0590323 0.74 0.460 .9332327 1.16511

sp75\_904\_ss\_c\_4lag | 1.046111 .0200975 2.35 0.019 1.007454 1.086253

sp75\_905\_ss\_c\_4lag | .7940252 .3156236 -0.58 0.562 .3643201 1.730555

sp75\_907\_ss\_c\_4lag | 1.116173 .210356 0.58 0.560 .7714587 1.614918

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

sp77\_1103\_ss\_c\_4lag | .9458371 .0876218 -0.60 0.548 .7887903 1.134152

sp77\_1104\_ss\_c\_4lag | 1.01555 .0157271 1.00 0.319 .985189 1.046848

sp77\_1106\_ss\_c\_4lag | 1 (omitted)

sp77\_1111\_ss\_c\_4lag | .8578739 .430582 -0.31 0.760 .3207675 2.294333

sp77\_1112\_ss\_c\_4lag | .9550489 .2229686 -0.20 0.844 .6043681 1.50921

sp77\_1403\_ss\_c\_4lag | .6017886 .3900186 -0.78 0.433 .1689589 2.143418

sp77\_1433\_ss\_c\_4lag | 1 (omitted)

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

sp77\_1437\_ss\_c\_4lag | .4777278 .1256799 -2.81 0.005 .2852645 .8000428

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

sp77\_1605\_ss\_c\_4lag | .9995893 .019176 -0.02 0.983 .9627028 1.037889

sp77\_1606\_ss\_c\_4lag | 1.011966 .0213288 0.56 0.572 .9710142 1.054645

sp77\_1710\_ss\_c\_4lag | .9933202 .0374081 -0.18 0.859 .9226421 1.069412

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

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

sp77\_1915\_ss\_c\_4lag | 2.825186 1.025698 2.86 0.004 1.386801 5.755461

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

sp77\_200\_ss\_c\_4lag | .9775101 .0286964 -0.77 0.438 .9228536 1.035404

sp77\_202\_ss\_c\_4lag | .8069144 .0330454 -5.24 0.000 .7446778 .8743525

sp77\_203\_ss\_c\_4lag | .6712138 .3234469 -0.83 0.408 .2610243 1.726

sp77\_204\_ss\_c\_4lag | 1.002607 .0722182 0.04 0.971 .8705993 1.154631

sp77\_205\_ss\_c\_4lag | 1.026458 .0189314 1.42 0.157 .9900163 1.064242

sp77\_206\_ss\_c\_4lag | 1.386642 .2553391 1.78 0.076 .9665457 1.989328

sp77\_207\_ss\_c\_4lag | 1.139276 .0749294 1.98 0.047 1.001488 1.296021

sp77\_208\_ss\_c\_4lag | 1.057815 .0449177 1.32 0.186 .9733414 1.149619

sp77\_210\_ss\_c\_4lag | 1.868622 .3639969 3.21 0.001 1.275593 2.737352

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

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

sp77\_400\_ss\_c\_4lag | 1.018263 .0182428 1.01 0.312 .9831285 1.054654

sp77\_401\_ss\_c\_4lag | .9563092 .1049669 -0.41 0.684 .7712023 1.185846

sp77\_402\_ss\_c\_4lag | 1.043528 .1046624 0.42 0.671 .8572977 1.270214

sp77\_403\_1\_ss\_c\_4lag | 1.762317 .6155818 1.62 0.105 .8887042 3.494708

sp77\_403\_ss\_c\_4lag | .9849845 .3462848 -0.04 0.966 .4945131 1.961919

sp77\_404\_ss\_c\_4lag | 1.014778 .0107788 1.38 0.167 .9938699 1.036125

sp77\_405\_ss\_c\_4lag | 1.331994 .2243885 1.70 0.089 .9574327 1.853088

sp77\_408\_ss\_c\_4lag | .8394991 .17408 -0.84 0.399 .559131 1.260454

sp77\_409\_ss\_c\_4lag | 1.825283 .6664876 1.65 0.099 .8923198 3.733702

sp77\_410\_ss\_c\_4lag | .9854199 .0211808 -0.68 0.494 .9447685 1.02782

sp77\_411\_ss\_c\_4lag | 1 (omitted)

sp77\_412\_ss\_c\_4lag | 1 (omitted)

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

sp77\_500\_ss\_c\_4lag | 1.723764 .7039033 1.33 0.182 .774261 3.837674

sp77\_501\_ss\_c\_4lag | .9456644 .1840659 -0.29 0.774 .6457397 1.384894

sp77\_502\_1\_ss\_c\_4lag | 1 (omitted)

sp77\_502\_2\_ss\_c\_4lag | .9437253 .1908253 -0.29 0.775 .6349347 1.402691

sp77\_502\_ss\_c\_4lag | .9969186 .0266547 -0.12 0.908 .9460215 1.050554

sp77\_503\_1\_ss\_c\_4lag | 2.11697 3.355933 0.47 0.636 .0946988 47.32436

sp77\_503\_ss\_c\_4lag | .6088425 .1151877 -2.62 0.009 .4202088 .8821549

sp77\_504\_ss\_c\_4lag | 1.002769 .0667724 0.04 0.967 .8800777 1.142564

sp77\_505\_ss\_c\_4lag | 1.012343 .0545214 0.23 0.820 .9109297 1.125047

sp77\_506\_1\_ss\_c\_4lag | .800582 .1914609 -0.93 0.352 .5010016 1.2793

sp77\_506\_ss\_c\_4lag | 1.022119 .0650008 0.34 0.731 .9023397 1.157798

sp77\_507\_ss\_c\_4lag | .9320074 .2315257 -0.28 0.777 .5727527 1.516602

sp77\_508\_1\_ss\_c\_4lag | 1.14149 .2152431 0.70 0.483 .7887996 1.651876

sp77\_508\_ss\_c\_4lag | 1.257347 .2464565 1.17 0.243 .8562652 1.846298

sp77\_509\_ss\_c\_4lag | .8053861 .0692824 -2.52 0.012 .6804254 .953296

sp77\_510\_ss\_c\_4lag | .9295348 .2402579 -0.28 0.777 .5600859 1.542683

sp77\_511\_ss\_c\_4lag | .6174001 .2326528 -1.28 0.201 .2949928 1.292177

sp77\_512\_ss\_c\_4lag | .9074345 .0506353 -1.74 0.082 .8134255 1.012308

sp77\_513\_ss\_c\_4lag | .9314463 .0617329 -1.07 0.284 .817981 1.060651

sp77\_514\_ss\_c\_4lag | 1 (omitted)

sp77\_515\_ss\_c\_4lag | 1.47618 .9929795 0.58 0.563 .3949689 5.517161

sp77\_516\_ss\_c\_4lag | .9332191 .035682 -1.81 0.071 .86584 1.005842

sp77\_600\_ss\_c\_4lag | 1.121382 .2557241 0.50 0.615 .7172031 1.753334

sp77\_601\_ss\_c\_4lag | .7728469 .1615596 -1.23 0.218 .5130436 1.164214

sp77\_602\_ss\_c\_4lag | 1.488269 .8832135 0.67 0.503 .4650888 4.762414

sp77\_603\_ss\_c\_4lag | 2.63858 1.292481 1.98 0.048 1.010225 6.891637

sp77\_604\_ss\_c\_4lag | 1.086518 .1303559 0.69 0.489 .8588421 1.37455

sp77\_605\_ss\_c\_4lag | 1.219759 .4677472 0.52 0.604 .5752538 2.586358

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

sp77\_700\_1\_ss\_c\_4lag | 2.264076 .5321036 3.48 0.001 1.428372 3.588728

sp77\_700\_ss\_c\_4lag | .8370749 .160718 -0.93 0.354 .5745581 1.219536

sp77\_701\_1\_ss\_c\_4lag | .8404766 .170652 -0.86 0.392 .5645417 1.251282

sp77\_701\_2\_ss\_c\_4lag | .9128073 .108333 -0.77 0.442 .7233651 1.151862

sp77\_701\_3\_ss\_c\_4lag | 1 (omitted)

sp77\_701\_4\_ss\_c\_4lag | 1.41447 .4027412 1.22 0.223 .8095277 2.471473

sp77\_701\_ss\_c\_4lag | .9207293 .0465588 -1.63 0.102 .833852 1.016658

sp77\_704\_1\_ss\_c\_4lag | 1.593004 .4360058 1.70 0.089 .9316286 2.7239

sp77\_704\_8\_ss\_c\_4lag | 1 (omitted)

sp77\_704\_9\_ss\_c\_4lag | 2.643721 1.444163 1.78 0.075 .9062271 7.712485

sp77\_704\_ss\_c\_4lag | 1.474525 .9497937 0.60 0.547 .4172179 5.211241

sp77\_705\_ss\_c\_4lag | 1.410484 .2816963 1.72 0.085 .9536075 2.086252

sp77\_800\_1\_ss\_c\_4lag | 1 (omitted)

sp77\_800\_2\_ss\_c\_4lag | 1.192516 .3608016 0.58 0.561 .6590663 2.157742

sp77\_800\_ss\_c\_4lag | .4740361 .1906749 -1.86 0.063 .2154897 1.042789

sp77\_801\_1\_ss\_c\_4lag | 1 (omitted)

sp77\_802\_ss\_c\_4lag | .3214353 .1371347 -2.66 0.008 .1392975 .7417262

sp77\_803\_ss\_c\_4lag | 1.577784 .5471122 1.32 0.188 .7996226 3.113222

sp77\_804\_ss\_c\_4lag | .6246807 .0921318 -3.19 0.001 .4678618 .8340625

sp77\_805\_ss\_c\_4lag | 1 (omitted)

sp77\_807\_1\_ss\_c\_4lag | .7787484 .4080359 -0.48 0.633 .2788678 2.174683

sp77\_807\_2\_ss\_c\_4lag | .719824 .2637025 -0.90 0.370 .3510707 1.475904

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

sp77\_807\_ss\_c\_4lag | 1.121468 .2654582 0.48 0.628 .7051844 1.783493

sp77\_808\_ss\_c\_4lag | 2.112521 .1741541 9.07 0.000 1.797335 2.482981

sp77\_809\_ss\_c\_4lag | .8656715 .0950154 -1.31 0.189 .6981134 1.073446

sp77\_810\_ss\_c\_4lag | 1 (omitted)

sp77\_900\_1\_ss\_c\_4lag | 1.362633 1.006584 0.42 0.675 .3203259 5.7965

sp77\_900\_2\_ss\_c\_4lag | 1 (omitted)

sp77\_900\_ss\_c\_4lag | .958669 .1819074 -0.22 0.824 .6609266 1.390542

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

sp77\_901\_ss\_c\_4lag | 1.456697 .8606614 0.64 0.524 .4575652 4.637515

sp77\_902\_3\_ss\_c\_4lag | 1 (omitted)

sp77\_902\_ss\_c\_4lag | 1.193632 .3996763 0.53 0.597 .6192323 2.300844

sp77\_903\_ss\_c\_4lag | 1 (omitted)

sp77\_904\_ss\_c\_4lag | 1.084308 .0666726 1.32 0.188 .9611994 1.223184

mine\_time | .9933827 .0150208 -0.44 0.661 .9643745 1.023263

onsite\_insp\_hours | 1.001031 .0002019 5.11 0.000 1.000636 1.001427

|

state |

1 | 1.346014 .4673609 0.86 0.392 .681548 2.65829

2 | 2.09416 .2935859 5.27 0.000 1.591028 2.756399

3 | .8706456 .3104185 -0.39 0.698 .432868 1.751166

4 | 1.996654 .6372964 2.17 0.030 1.068106 3.732426

5 | .9647536 .2954039 -0.12 0.907 .5293973 1.758131

6 | .6756511 .0674399 -3.93 0.000 .5555972 .8216464

7 | 1.180886 .4415302 0.44 0.657 .5674741 2.457367

8 | 1.299677 .1738438 1.96 0.050 .9999529 1.689241

9 | 2.646893 .6551759 3.93 0.000 1.629452 4.299632

10 | .5760323 .2325647 -1.37 0.172 .2610878 1.270888

11 | .6301747 .2125714 -1.37 0.171 .3253363 1.220645

12 | .9752981 .1739083 -0.14 0.888 .6876337 1.383304

13 | 1.863757 .6767798 1.71 0.086 .914735 3.797373

14 | .9243545 .3119326 -0.23 0.816 .477081 1.790956

15 | .5234963 .0633273 -5.35 0.000 .4129941 .6635648

17 | 1 (empty)

|

time |

2000 | 1.022674 .152358 0.15 0.880 .7637045 1.36946

2002 | .7109188 .1130791 -2.15 0.032 .520508 .9709851

2003 | .7469952 .1330203 -1.64 0.101 .5269157 1.058996

2004 | .4606396 .0802244 -4.45 0.000 .3274289 .6480454

2005 | .4698366 .0754146 -4.71 0.000 .3430192 .6435395

2006 | .5232427 .0878976 -3.86 0.000 .3764549 .727266

2007 | .5093546 .0907365 -3.79 0.000 .3592419 .7221933

2008 | .3928068 .0709578 -5.17 0.000 .2756865 .5596836

2009 | .1900908 .0373573 -8.45 0.000 .1293243 .2794102

2010 | .3044147 .0619838 -5.84 0.000 .2042429 .4537161

2011 | .3489855 .0672605 -5.46 0.000 .239196 .5091676

2012 | .2799095 .0593414 -6.01 0.000 .1847401 .4241057

2013 | .2069324 .04687 -6.96 0.000 .1327493 .3225706

2014 | .1784492 .0419909 -7.32 0.000 .112517 .2830159

2015 | .2281822 .0538409 -6.26 0.000 .1436931 .3623494

|

\_cons | .0000237 3.28e-06 -77.08 0.000 .0000181 .0000311

lnhours | 1 (offset)

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

Note: 0 failures and 2 successes completely determined.

(est1 stored)

**. lfit**

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

number of observations = 5941

number of covariate patterns = 5925

Pearson chi2(5665) = 5330.45

Prob > chi2 = 0.9993

**. linktest**

Iteration 0: log likelihood = -4106.1444

Iteration 1: log likelihood = -2718.6689

Iteration 2: log likelihood = -2714.6512

Iteration 3: log likelihood = -2712.6967

Iteration 4: log likelihood = -2712.5632

Iteration 5: log likelihood = -2712.5632

Logistic regression Number of obs = 5,941

LR chi2(2) = 2787.16

Prob > chi2 = 0.0000

Log likelihood = -2712.5632 Pseudo R2 = 0.3394

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

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

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

\_hat | 1.091757 .0305254 35.77 0.000 1.031928 1.151586

\_hatsq | -.0200176 .015238 -1.31 0.189 -.0498835 .0098482

\_cons | .0231375 .0383407 0.60 0.546 -.0520089 .098284

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

**. estat classification**

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 2509 673 | 3182

- | 649 2110 | 2759

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

Total | 3158 2783 | 5941

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

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

Sensitivity Pr( +| D) 79.45%

Specificity Pr( -|~D) 75.82%

Positive predictive value Pr( D| +) 78.85%

Negative predictive value Pr(~D| -) 76.48%

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False + rate for true ~D Pr( +|~D) 24.18%

False - rate for true D Pr( -| D) 20.55%

False + rate for classified + Pr(~D| +) 21.15%

False - rate for classified - Pr( D| -) 23.52%

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

Correctly classified 77.75%

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

**. summ MR\_indicator spbssv3\_yhat**

Variable | Obs Mean Std. Dev. Min Max

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

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

spbssv3\_yhat | 5,941 .5315603 .302138 .0003538 1