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

sp75\_1400\_2\_ss\_c\_4lag dropped and 4 obs not used

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

sp75\_1400\_4\_ss\_c\_4lag dropped and 4 obs not used

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

sp75\_1403\_11\_ss\_c\_4lag dropped and 4 obs not used

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

sp75\_1403\_3\_ss\_c\_4lag dropped and 4 obs not used

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

sp75\_1403\_4\_ss\_c\_4lag dropped and 8 obs not used

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

sp75\_1432\_ss\_c\_4lag dropped and 8 obs not used

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

sp75\_153\_ss\_c\_4lag dropped and 4 obs not used

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

sp75\_155\_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 11 obs not used

note: sp75\_705\_8\_ss\_c\_4lag != 0 predicts failure perfectly

sp75\_705\_8\_ss\_c\_4lag dropped and 6 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\_819\_ss\_c\_4lag != 0 predicts success perfectly

sp75\_819\_ss\_c\_4lag dropped and 4 obs not used

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

sp77\_1106\_ss\_c\_4lag dropped and 4 obs not used

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

sp77\_1433\_ss\_c\_4lag dropped and 8 obs not used

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

sp77\_413\_ss\_c\_4lag dropped and 4 obs not used

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

sp77\_502\_1\_ss\_c\_4lag dropped and 4 obs not used

note: sp77\_701\_3\_ss\_c\_4lag != 0 predicts success perfectly

sp77\_701\_3\_ss\_c\_4lag dropped and 4 obs not used

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

sp77\_900\_2\_ss\_c\_4lag dropped and 4 obs not used

note: sp77\_901\_1\_ss\_c\_4lag != 0 predicts failure perfectly

sp77\_901\_1\_ss\_c\_4lag dropped and 1 obs not used

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

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

Iteration 0: log pseudolikelihood = -10674.427

Iteration 1: log pseudolikelihood = -10007.108

Iteration 2: log pseudolikelihood = -9994.8033

Iteration 3: log pseudolikelihood = -9994.6387

Iteration 4: log pseudolikelihood = -9994.5998

Iteration 5: log pseudolikelihood = -9994.5935

Iteration 6: log pseudolikelihood = -9994.5919

Iteration 7: log pseudolikelihood = -9994.5917

Iteration 8: log pseudolikelihood = -9994.5917

Logistic regression Number of obs = 22,355

Wald chi2(346) = .

Log pseudolikelihood = -9994.5917 Prob > chi2 = .

(Std. Err. adjusted for 1,293 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 | .677478 .2902742 -0.91 0.363 .292541 1.56893

sp47\_44\_ss\_c\_4lag | .0000483 .0000538 -8.92 0.000 5.44e-06 .000429

sp48\_11\_ss\_c\_4lag | 1.135099 .1632536 0.88 0.378 .8562709 1.504722

sp48\_25\_ss\_c\_4lag | .7975259 .0821459 -2.20 0.028 .6517339 .9759315

sp48\_26\_ss\_c\_4lag | 1.372057 .1084088 4.00 0.000 1.175214 1.601869

sp48\_27\_ss\_c\_4lag | .9038178 .1351632 -0.68 0.499 .6741961 1.211645

sp48\_28\_ss\_c\_4lag | .7981246 .1391287 -1.29 0.196 .5671391 1.123186

sp48\_4\_ss\_c\_4lag | 1.454091 1.304967 0.42 0.677 .250429 8.443028

sp48\_5\_ss\_c\_4lag | .8097996 .167006 -1.02 0.306 .5405466 1.213171

sp48\_6\_ss\_c\_4lag | .7778354 .1023959 -1.91 0.056 .6009436 1.006796

sp48\_7\_ss\_c\_4lag | 1.108311 .1187265 0.96 0.337 .8984165 1.367243

sp48\_8\_ss\_c\_4lag | 1.126728 .2453213 0.55 0.584 .7353396 1.726435

sp71\_701\_ss\_c\_4lag | 2.396416 .7602625 2.75 0.006 1.286822 4.462782

sp72\_503\_ss\_c\_4lag | .6731365 .167402 -1.59 0.111 .4134455 1.095943

sp72\_610\_ss\_c\_4lag | .9193271 .3233509 -0.24 0.811 .4614033 1.831722

sp72\_620\_ss\_c\_4lag | 1.232163 .3836359 0.67 0.503 .6693373 2.268251

sp72\_630\_ss\_c\_4lag | 1.031166 .0187489 1.69 0.091 .9950662 1.068576

sp75\_100\_ss\_c\_4lag | .8100557 .2983325 -0.57 0.567 .3935762 1.66725

sp75\_1001\_1\_ss\_c\_4lag | .2915983 .4078797 -0.88 0.378 .0187996 4.522955

sp75\_1001\_ss\_c\_4lag | 1.498308 .8787004 0.69 0.491 .4746835 4.729315

sp75\_1003\_1\_ss\_c\_4lag | .9391286 .7376979 -0.08 0.936 .2014165 4.3788

sp75\_1100\_2\_ss\_c\_4lag | 1.030458 .0263105 1.18 0.240 .9801594 1.083338

sp75\_1101\_20\_ss\_c\_4lag | .7964635 .1470242 -1.23 0.218 .5546733 1.143654

sp75\_1102\_ss\_c\_4lag | .799497 .0752744 -2.38 0.017 .6647744 .9615223

sp75\_1103\_4\_ss\_c\_4lag | 1.085134 .0618682 1.43 0.152 .9704037 1.213428

sp75\_1104\_ss\_c\_4lag | .8606118 .2332386 -0.55 0.580 .5059632 1.463847

sp75\_1106\_2\_ss\_c\_4lag | .945697 .0810658 -0.65 0.515 .7994411 1.11871

sp75\_1106\_3\_ss\_c\_4lag | 1.082939 .0515168 1.67 0.094 .9865326 1.188767

sp75\_1106\_4\_ss\_c\_4lag | .8717055 .2782342 -0.43 0.667 .4663159 1.629519

sp75\_1106\_5\_ss\_c\_4lag | .7299731 .0966346 -2.38 0.017 .5631498 .9462149

sp75\_1106\_6\_ss\_c\_4lag | .5667346 .3307597 -0.97 0.331 .1805504 1.778939

sp75\_1106\_ss\_c\_4lag | 1.189426 .1947225 1.06 0.289 .8629505 1.639414

sp75\_1107\_14\_ss\_c\_4lag | .8637065 .3711128 -0.34 0.733 .3720715 2.004961

sp75\_1400\_1\_ss\_c\_4lag | 1.084772 .3778538 0.23 0.815 .548079 2.147008

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

sp75\_1400\_3\_ss\_c\_4lag | 1.080829 .2373997 0.35 0.723 .7027387 1.66234

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

sp75\_1400\_ss\_c\_4lag | 1.109584 .127888 0.90 0.367 .8852229 1.390809

sp75\_1401\_ss\_c\_4lag | 1.297398 .500783 0.67 0.500 .6088601 2.764577

sp75\_1403\_10\_ss\_c\_4lag | 1.081143 .0552617 1.53 0.127 .9780811 1.195066

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 | .9612822 .0225536 -1.68 0.092 .9180789 1.006519

sp75\_1403\_6\_ss\_c\_4lag | .9815122 .0303615 -0.60 0.546 .9237729 1.042861

sp75\_1403\_7\_ss\_c\_4lag | .9610832 .1003297 -0.38 0.704 .7832531 1.179288

sp75\_1403\_8\_ss\_c\_4lag | 1.025193 .0398469 0.64 0.522 .9499955 1.106343

sp75\_1403\_9\_ss\_c\_4lag | 1.110409 .270191 0.43 0.667 .6892293 1.788966

sp75\_1404\_1\_ss\_c\_4lag | .4227657 .2618935 -1.39 0.165 .1255452 1.423637

sp75\_1404\_ss\_c\_4lag | 1.80198 1.129507 0.94 0.347 .5274783 6.155956

sp75\_1405\_1\_ss\_c\_4lag | 4.710632 1.429017 5.11 0.000 2.599314 8.53689

sp75\_1405\_ss\_c\_4lag | .962496 .0320018 -1.15 0.250 .9017736 1.027307

sp75\_1431\_ss\_c\_4lag | 1.638694 1.004654 0.81 0.420 .4927672 5.449469

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

sp75\_1433\_ss\_c\_4lag | .8883413 .2504682 -0.42 0.675 .511191 1.543748

sp75\_1434\_ss\_c\_4lag | 1.124004 .2870793 0.46 0.647 .681341 1.854263

sp75\_1435\_ss\_c\_4lag | .808802 .7392942 -0.23 0.816 .1348318 4.85168

sp75\_1437\_ss\_c\_4lag | 1.454966 .7108509 0.77 0.443 .5584474 3.790734

sp75\_150\_ss\_c\_4lag | 2.959624 2.109184 1.52 0.128 .7321928 11.96321

sp75\_151\_ss\_c\_4lag | .1325652 .084286 -3.18 0.001 .0381267 .4609246

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

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

sp75\_156\_ss\_c\_4lag | 1.04168 .439409 0.10 0.923 .4556949 2.381191

sp75\_1600\_2\_ss\_c\_4lag | .7400142 .1659097 -1.34 0.179 .4768725 1.148359

sp75\_1712\_10\_ss\_c\_4lag | .8353844 .4091142 -0.37 0.713 .3199086 2.181458

sp75\_1712\_6\_ss\_c\_4lag | 3.865246 1.596377 3.27 0.001 1.720379 8.684206

sp75\_1720\_ss\_c\_4lag | 1.066384 .0565367 1.21 0.225 .9611375 1.183156

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

sp75\_1725\_ss\_c\_4lag | 1.01132 .007963 1.43 0.153 .9958328 1.027049

sp75\_1726\_ss\_c\_4lag | 1.468963 .2650761 2.13 0.033 1.031361 2.092239

sp75\_1727\_ss\_c\_4lag | 2.751391 1.001756 2.78 0.005 1.347839 5.616514

sp75\_1728\_ss\_c\_4lag | 2.040566 .9637351 1.51 0.131 .8086088 5.149476

sp75\_1729\_ss\_c\_4lag | 1.031708 .2096801 0.15 0.878 .6927267 1.536567

sp75\_1730\_ss\_c\_4lag | .5625015 .1707176 -1.90 0.058 .3103034 1.019673

sp75\_1731\_ss\_c\_4lag | .9937665 .0082996 -0.75 0.454 .977632 1.010167

sp75\_1903\_ss\_c\_4lag | 2.10731 .9094182 1.73 0.084 .9044594 4.909846

sp75\_1909\_ss\_c\_4lag | 1.062724 .0368558 1.75 0.079 .9928884 1.137472

sp75\_1910\_ss\_c\_4lag | .9765484 .0456801 -0.51 0.612 .8909986 1.070312

sp75\_1911\_ss\_c\_4lag | .91313 .0663041 -1.25 0.211 .792 1.052786

sp75\_1912\_ss\_c\_4lag | 2.217417 .7048786 2.51 0.012 1.189228 4.134563

sp75\_1913\_ss\_c\_4lag | 1.322038 .2024372 1.82 0.068 .9792726 1.784778

sp75\_1914\_ss\_c\_4lag | 1.003179 .0300366 0.11 0.916 .9460023 1.063811

sp75\_1915\_ss\_c\_4lag | 2.081386 .802032 1.90 0.057 .9780348 4.42946

sp75\_202\_ss\_c\_4lag | 1.003046 .0046939 0.65 0.516 .9938883 1.012288

sp75\_208\_ss\_c\_4lag | .994437 .032187 -0.17 0.863 .933311 1.059566

sp75\_211\_ss\_c\_4lag | .9840914 .034242 -0.46 0.645 .9192156 1.053546

sp75\_212\_ss\_c\_4lag | .8597434 .0626034 -2.08 0.038 .7453966 .9916315

sp75\_214\_ss\_c\_4lag | .8382828 .1661387 -0.89 0.373 .568449 1.236203

sp75\_312\_ss\_c\_4lag | .6975505 .1243131 -2.02 0.043 .4919034 .9891712

sp75\_320\_ss\_c\_4lag | 1.022856 .0927382 0.25 0.803 .8563272 1.22177

sp75\_324\_ss\_c\_4lag | 1.025493 .1154051 0.22 0.823 .8225108 1.278567

sp75\_337\_ss\_c\_4lag | 1.082961 .0974671 0.89 0.376 .9078296 1.291878

sp75\_340\_ss\_c\_4lag | 1.040076 .0339875 1.20 0.229 .9755501 1.10887

sp75\_342\_ss\_c\_4lag | 1.008025 .0204874 0.39 0.694 .9686597 1.04899

sp75\_344\_ss\_c\_4lag | 1.318246 .2825955 1.29 0.197 .8660086 2.006645

sp75\_352\_ss\_c\_4lag | 1.077159 .1153571 0.69 0.488 .8732152 1.328734

sp75\_382\_ss\_c\_4lag | 1.794096 .5955459 1.76 0.078 .9360337 3.438746

sp75\_503\_ss\_c\_4lag | 1.008037 .0087564 0.92 0.357 .9910197 1.025346

sp75\_504\_ss\_c\_4lag | .5187295 .2443442 -1.39 0.163 .2060573 1.305852

sp75\_505\_ss\_c\_4lag | .6607517 .2843644 -0.96 0.336 .2842568 1.53591

sp75\_506\_1\_ss\_c\_4lag | 1.030394 .2212677 0.14 0.889 .6764183 1.569607

sp75\_506\_ss\_c\_4lag | .8581943 .2644967 -0.50 0.620 .469077 1.570099

sp75\_507\_ss\_c\_4lag | 1.144435 .1573288 0.98 0.326 .8741258 1.498333

sp75\_511\_1\_ss\_c\_4lag | .2934977 .0817063 -4.40 0.000 .170075 .5064879

sp75\_511\_ss\_c\_4lag | 1.122765 .0948491 1.37 0.170 .9514389 1.324941

sp75\_512\_1\_ss\_c\_4lag | 2.302592 1.574569 1.22 0.223 .6027603 8.796085

sp75\_512\_2\_ss\_c\_4lag | .9394891 .079927 -0.73 0.463 .795199 1.109961

sp75\_512\_ss\_c\_4lag | .9975593 .0131236 -0.19 0.853 .9721663 1.023616

sp75\_513\_1\_ss\_c\_4lag | .2972005 .326832 -1.10 0.270 .0344335 2.565179

sp75\_513\_ss\_c\_4lag | 1.061826 .2389987 0.27 0.790 .6830656 1.650609

sp75\_514\_ss\_c\_4lag | .9697247 .0482864 -0.62 0.537 .8795566 1.069137

sp75\_515\_ss\_c\_4lag | .9300265 .0389768 -1.73 0.083 .8566867 1.009645

sp75\_516\_1\_ss\_c\_4lag | .5233526 .1159284 -2.92 0.003 .3390345 .8078765

sp75\_516\_2\_ss\_c\_4lag | 1.132449 1.076154 0.13 0.896 .1758455 7.292996

sp75\_516\_ss\_c\_4lag | 1.102661 .0894921 1.20 0.229 .9404994 1.292783

sp75\_517\_1\_ss\_c\_4lag | 1.148447 .3876095 0.41 0.682 .5926853 2.225348

sp75\_517\_ss\_c\_4lag | 1.000608 .0082491 0.07 0.941 .9845699 1.016907

sp75\_518\_1\_ss\_c\_4lag | .6679332 .064851 -4.16 0.000 .5521895 .8079378

sp75\_518\_ss\_c\_4lag | 1.058142 .0373544 1.60 0.109 .9874041 1.133948

sp75\_519\_ss\_c\_4lag | 2.526282 2.321112 1.01 0.313 .417263 15.29515

sp75\_520\_ss\_c\_4lag | .9936604 .0701109 -0.09 0.928 .865324 1.14103

sp75\_523\_1\_ss\_c\_4lag | .9203744 .0437642 -1.74 0.081 .838474 1.010275

sp75\_523\_2\_ss\_c\_4lag | 1.061144 .0505281 1.25 0.213 .9665919 1.164946

sp75\_523\_ss\_c\_4lag | .9231001 .0398805 -1.85 0.064 .8481535 1.004669

sp75\_600\_1\_ss\_c\_4lag | .5376569 .2265966 -1.47 0.141 .2353773 1.228134

sp75\_600\_ss\_c\_4lag | 2.697077 .6655311 4.02 0.000 1.662841 4.374576

sp75\_601\_1\_ss\_c\_4lag | .9900661 .0360238 -0.27 0.784 .9219196 1.06325

sp75\_601\_2\_ss\_c\_4lag | .8323042 .2600283 -0.59 0.557 .4511801 1.535374

sp75\_601\_3\_ss\_c\_4lag | .7996044 .2549158 -0.70 0.483 .4280654 1.49362

sp75\_601\_ss\_c\_4lag | .9639488 .039484 -0.90 0.370 .8895865 1.044527

sp75\_602\_ss\_c\_4lag | 1.12006 .1090444 1.16 0.244 .9254902 1.355535

sp75\_603\_ss\_c\_4lag | 1.010268 .1210682 0.09 0.932 .7987864 1.277741

sp75\_604\_ss\_c\_4lag | 1.03374 .0124568 2.75 0.006 1.009611 1.058445

sp75\_605\_ss\_c\_4lag | .9998166 .0542936 -0.00 0.997 .8988705 1.112099

sp75\_606\_ss\_c\_4lag | .9853548 .0277463 -0.52 0.600 .9324465 1.041265

sp75\_607\_ss\_c\_4lag | 1.12422 .090821 1.45 0.147 .9595917 1.317093

sp75\_700\_1\_ss\_c\_4lag | .7675539 .3321679 -0.61 0.541 .3286559 1.792571

sp75\_700\_ss\_c\_4lag | .9491472 .1135486 -0.44 0.663 .7507623 1.199954

sp75\_701\_1\_ss\_c\_4lag | .9050512 .1004885 -0.90 0.369 .7280541 1.125078

sp75\_701\_2\_ss\_c\_4lag | 1.120392 .2255452 0.56 0.572 .7551189 1.662359

sp75\_701\_3\_ss\_c\_4lag | .9634082 .2016207 -0.18 0.859 .639252 1.45194

sp75\_701\_4\_ss\_c\_4lag | 3.331844 1.06655 3.76 0.000 1.779132 6.239664

sp75\_701\_ss\_c\_4lag | 1.100283 .0374483 2.81 0.005 1.029281 1.176184

sp75\_703\_2\_ss\_c\_4lag | .8205776 .2770466 -0.59 0.558 .4233833 1.590397

sp75\_703\_3\_ss\_c\_4lag | .9708782 .2048553 -0.14 0.889 .6420388 1.468143

sp75\_703\_ss\_c\_4lag | 1.073992 .0859558 0.89 0.372 .9180708 1.256395

sp75\_704\_ss\_c\_4lag | 1.4901 .7325634 0.81 0.417 .5685222 3.905561

sp75\_705\_1\_ss\_c\_4lag | .8871401 .2434876 -0.44 0.663 .5180461 1.519204

sp75\_705\_8\_ss\_c\_4lag | 1 (omitted)

sp75\_705\_ss\_c\_4lag | 1.877994 .4259097 2.78 0.005 1.204067 2.929125

sp75\_706\_ss\_c\_4lag | .9272572 .1735327 -0.40 0.687 .6425413 1.338133

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

sp75\_800\_3\_ss\_c\_4lag | .6134131 .2409371 -1.24 0.213 .2840646 1.324613

sp75\_800\_4\_ss\_c\_4lag | 2.824952 1.933177 1.52 0.129 .7387799 10.80207

sp75\_800\_ss\_c\_4lag | .7701468 .1157042 -1.74 0.082 .5737093 1.033844

sp75\_801\_ss\_c\_4lag | 1.081341 .5933672 0.14 0.887 .3688764 3.169895

sp75\_802\_ss\_c\_4lag | .6668013 .1512939 -1.79 0.074 .427428 1.040231

sp75\_803\_2\_ss\_c\_4lag | 1.755215 1.166444 0.85 0.397 .4771515 6.456604

sp75\_803\_ss\_c\_4lag | 1.003386 .1356949 0.02 0.980 .7697576 1.307922

sp75\_804\_ss\_c\_4lag | .8585028 .0832159 -1.57 0.115 .7099595 1.038126

sp75\_805\_ss\_c\_4lag | .8216544 .1821119 -0.89 0.375 .5321432 1.268674

sp75\_806\_ss\_c\_4lag | .4620255 .1294607 -2.76 0.006 .2667824 .8001561

sp75\_807\_ss\_c\_4lag | 1.073106 .0421298 1.80 0.072 .9936296 1.158939

sp75\_808\_ss\_c\_4lag | 1.032022 .1874511 0.17 0.862 .7229049 1.473319

sp75\_809\_ss\_c\_4lag | .9910971 .0757017 -0.12 0.907 .8532964 1.151151

sp75\_810\_ss\_c\_4lag | 1.300582 .1626261 2.10 0.036 1.017895 1.661778

sp75\_811\_ss\_c\_4lag | 1.115083 .2294245 0.53 0.597 .7450326 1.668933

sp75\_812\_ss\_c\_4lag | .5279349 .1582605 -2.13 0.033 .2933684 .950052

sp75\_814\_ss\_c\_4lag | 30928.1 32754.67 9.76 0.000 3880.44 246504.9

sp75\_815\_ss\_c\_4lag | 3.519466 2.18354 2.03 0.043 1.043221 11.87346

sp75\_816\_ss\_c\_4lag | 1.22243 .1822357 1.35 0.178 .9127035 1.637262

sp75\_818\_ss\_c\_4lag | 8.06744 1.434811 11.74 0.000 5.693087 11.43204

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

sp75\_820\_ss\_c\_4lag | .8549961 .1852763 -0.72 0.470 .5591265 1.307429

sp75\_821\_ss\_c\_4lag | 1.011379 .2905533 0.04 0.969 .57594 1.776032

sp75\_825\_ss\_c\_4lag | 1.495424 1.143323 0.53 0.599 .3341801 6.691882

sp75\_827\_ss\_c\_4lag | 1.994374 .8139127 1.69 0.091 .8962465 4.437983

sp75\_831\_ss\_c\_4lag | .7555511 .1940617 -1.09 0.275 .4567037 1.249951

sp75\_900\_2\_ss\_c\_4lag | .4784066 .3115919 -1.13 0.258 .1334748 1.714727

sp75\_900\_3\_ss\_c\_4lag | .9239812 .3098812 -0.24 0.814 .4788401 1.782936

sp75\_900\_4\_ss\_c\_4lag | 1.859075 .4629805 2.49 0.013 1.141077 3.028855

sp75\_900\_ss\_c\_4lag | .994179 .0461297 -0.13 0.900 .9077557 1.08883

sp75\_901\_ss\_c\_4lag | .9794532 .1966884 -0.10 0.918 .6607697 1.451835

sp75\_902\_1\_ss\_c\_4lag | .9780256 .3458879 -0.06 0.950 .4890068 1.956075

sp75\_902\_2\_ss\_c\_4lag | 1.278015 .1474083 2.13 0.033 1.019429 1.602193

sp75\_902\_4\_ss\_c\_4lag | .9036026 .1654891 -0.55 0.580 .6310812 1.293808

sp75\_902\_ss\_c\_4lag | 1.001792 .0493208 0.04 0.971 .9096421 1.103276

sp75\_903\_ss\_c\_4lag | .9974163 .0724119 -0.04 0.972 .8651266 1.149935

sp75\_904\_ss\_c\_4lag | 1.024008 .024537 0.99 0.322 .9770283 1.073247

sp75\_905\_ss\_c\_4lag | 1.46977 .8003575 0.71 0.479 .5055116 4.273344

sp75\_907\_ss\_c\_4lag | .9964118 .2679534 -0.01 0.989 .5882138 1.687884

sp77\_103\_ss\_c\_4lag | 1.229428 .1415837 1.79 0.073 .9810175 1.54074

sp77\_1103\_ss\_c\_4lag | .8005932 .0954095 -1.87 0.062 .6338277 1.011236

sp77\_1104\_ss\_c\_4lag | 1.033822 .0237718 1.45 0.148 .9882645 1.08148

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

sp77\_1111\_ss\_c\_4lag | .5879751 .3736951 -0.84 0.403 .1691869 2.043389

sp77\_1112\_ss\_c\_4lag | .9904768 .2051531 -0.05 0.963 .659992 1.486449

sp77\_1403\_ss\_c\_4lag | .8082517 .2126348 -0.81 0.418 .4826281 1.35357

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

sp77\_1434\_ss\_c\_4lag | .8471976 .3677278 -0.38 0.702 .361842 1.983583

sp77\_1437\_ss\_c\_4lag | 1.118534 .943105 0.13 0.894 .2142635 5.839152

sp77\_1438\_ss\_c\_4lag | 1.320355 .9230566 0.40 0.691 .3354423 5.197128

sp77\_1605\_ss\_c\_4lag | 1.03285 .0299128 1.12 0.264 .9758547 1.093174

sp77\_1606\_ss\_c\_4lag | 1.057746 .0357324 1.66 0.097 .9899795 1.13015

sp77\_1710\_ss\_c\_4lag | .9722533 .0481802 -0.57 0.570 .8822627 1.071423

sp77\_1802\_ss\_c\_4lag | .4948266 .3359374 -1.04 0.300 .1307895 1.872118

sp77\_1906\_ss\_c\_4lag | .6257762 .620226 -0.47 0.636 .0896948 4.365871

sp77\_1915\_ss\_c\_4lag | .7429264 .3464289 -0.64 0.524 .2978708 1.85295

sp77\_1916\_ss\_c\_4lag | 1.061703 .3315293 0.19 0.848 .5757119 1.957946

sp77\_200\_ss\_c\_4lag | .9267681 .024953 -2.82 0.005 .8791292 .9769885

sp77\_202\_ss\_c\_4lag | .942783 .0507906 -1.09 0.274 .8483106 1.047776

sp77\_203\_ss\_c\_4lag | .7003714 .2140991 -1.17 0.244 .3846994 1.275074

sp77\_204\_ss\_c\_4lag | .9767574 .0676724 -0.34 0.734 .8527332 1.11882

sp77\_205\_ss\_c\_4lag | 1.043013 .0241167 1.82 0.069 .9968005 1.091369

sp77\_206\_ss\_c\_4lag | 1.094104 .1764775 0.56 0.577 .7975558 1.500916

sp77\_207\_ss\_c\_4lag | 1.247093 .1099807 2.50 0.012 1.049136 1.482402

sp77\_208\_ss\_c\_4lag | 1.099688 .060023 1.74 0.082 .988119 1.223854

sp77\_210\_ss\_c\_4lag | 1.006768 .1670352 0.04 0.968 .7272847 1.393651

sp77\_216\_ss\_c\_4lag | 3.121976 2.691069 1.32 0.187 .5763871 16.91005

sp77\_315\_ss\_c\_4lag | 1.706807 1.55746 0.59 0.558 .2854064 10.20716

sp77\_400\_ss\_c\_4lag | 1.018082 .0224576 0.81 0.417 .9750034 1.063063

sp77\_401\_ss\_c\_4lag | .9645427 .1667862 -0.21 0.835 .6872803 1.353658

sp77\_402\_ss\_c\_4lag | .9898121 .1018447 -0.10 0.921 .8090401 1.210976

sp77\_403\_1\_ss\_c\_4lag | 1.019 .2603099 0.07 0.941 .6176319 1.681199

sp77\_403\_ss\_c\_4lag | 2.645339 1.4433 1.78 0.075 .9079558 7.707225

sp77\_404\_ss\_c\_4lag | .9769975 .0148441 -1.53 0.126 .9483326 1.006529

sp77\_405\_ss\_c\_4lag | 1.083868 .1980888 0.44 0.659 .7575476 1.550754

sp77\_408\_ss\_c\_4lag | .9543197 .1834138 -0.24 0.808 .654785 1.390878

sp77\_409\_ss\_c\_4lag | .1026987 .214516 -1.09 0.276 .0017123 6.159499

sp77\_410\_ss\_c\_4lag | .9662032 .0322229 -1.03 0.303 .9050673 1.031469

sp77\_411\_ss\_c\_4lag | .4041842 .1302748 -2.81 0.005 .2148939 .7602119

sp77\_412\_ss\_c\_4lag | 1.972312 .5479341 2.44 0.014 1.144197 3.399778

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

sp77\_500\_ss\_c\_4lag | 1.376539 .3523337 1.25 0.212 .8335245 2.273311

sp77\_501\_ss\_c\_4lag | 1.136798 .2066194 0.71 0.481 .7961092 1.623282

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

sp77\_502\_2\_ss\_c\_4lag | 1.065084 .2145688 0.31 0.754 .717634 1.580755

sp77\_502\_ss\_c\_4lag | .9304784 .0270017 -2.48 0.013 .8790328 .9849348

sp77\_503\_1\_ss\_c\_4lag | .1610773 .0540231 -5.44 0.000 .0834744 .3108248

sp77\_503\_ss\_c\_4lag | .5505616 .1640082 -2.00 0.045 .3070714 .9871259

sp77\_504\_ss\_c\_4lag | .9892445 .100344 -0.11 0.915 .8108901 1.206828

sp77\_505\_ss\_c\_4lag | .8635126 .0774214 -1.64 0.102 .7243544 1.029405

sp77\_506\_1\_ss\_c\_4lag | 1.064363 .2438143 0.27 0.785 .6793666 1.667535

sp77\_506\_ss\_c\_4lag | 1.208641 .1574851 1.45 0.146 .9362385 1.560301

sp77\_507\_ss\_c\_4lag | 1.167928 .2980941 0.61 0.543 .7082082 1.926065

sp77\_508\_1\_ss\_c\_4lag | 2.410076 1.107727 1.91 0.056 .9790359 5.932841

sp77\_508\_ss\_c\_4lag | 1.355394 .4586434 0.90 0.369 .698285 2.630864

sp77\_509\_ss\_c\_4lag | .7817257 .1119339 -1.72 0.085 .5904353 1.034991

sp77\_510\_ss\_c\_4lag | .5837974 .6203707 -0.51 0.613 .0727336 4.685858

sp77\_511\_ss\_c\_4lag | .5076816 .2057679 -1.67 0.094 .2293991 1.123547

sp77\_512\_ss\_c\_4lag | .9351037 .072125 -0.87 0.384 .8039076 1.087711

sp77\_513\_ss\_c\_4lag | 1.011058 .0828208 0.13 0.893 .8610932 1.187141

sp77\_514\_ss\_c\_4lag | 2.74845 1.118711 2.48 0.013 1.237714 6.103167

sp77\_515\_ss\_c\_4lag | .9125574 .5299645 -0.16 0.875 .2923667 2.848345

sp77\_516\_ss\_c\_4lag | .9493127 .0606402 -0.81 0.415 .8375991 1.075926

sp77\_600\_ss\_c\_4lag | 1.314506 .2867537 1.25 0.210 .8571888 2.015804

sp77\_601\_ss\_c\_4lag | .5451464 .2418285 -1.37 0.171 .2285166 1.300495

sp77\_602\_ss\_c\_4lag | 1.046427 .2967969 0.16 0.873 .6001827 1.824459

sp77\_603\_ss\_c\_4lag | .6678926 .371513 -0.73 0.468 .2245064 1.986939

sp77\_604\_ss\_c\_4lag | .6572046 .2043154 -1.35 0.177 .357334 1.208723

sp77\_605\_ss\_c\_4lag | .9659645 .8042678 -0.04 0.967 .188906 4.939428

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

sp77\_700\_1\_ss\_c\_4lag | 3.173029 1.035078 3.54 0.000 1.674181 6.013754

sp77\_700\_ss\_c\_4lag | .7672995 .3030552 -0.67 0.502 .3538111 1.664019

sp77\_701\_1\_ss\_c\_4lag | .8883285 .3932916 -0.27 0.789 .373009 2.115573

sp77\_701\_2\_ss\_c\_4lag | .6781866 .204833 -1.29 0.199 .3751979 1.225852

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

sp77\_701\_4\_ss\_c\_4lag | 1.232312 .3832722 0.67 0.502 .6698556 2.267047

sp77\_701\_ss\_c\_4lag | 1.015985 .0786188 0.20 0.838 .8730106 1.182373

sp77\_704\_1\_ss\_c\_4lag | 1.436571 .3453352 1.51 0.132 .8968257 2.301157

sp77\_704\_8\_ss\_c\_4lag | .4863048 .4792499 -0.73 0.464 .0704783 3.355534

sp77\_704\_9\_ss\_c\_4lag | 1.425392 .336644 1.50 0.133 .8972238 2.264478

sp77\_704\_ss\_c\_4lag | 1.291269 .5408603 0.61 0.542 .5681761 2.934611

sp77\_705\_ss\_c\_4lag | .9628053 .2376229 -0.15 0.878 .5935532 1.561771

sp77\_800\_1\_ss\_c\_4lag | .9271441 .5304659 -0.13 0.895 .3020869 2.845526

sp77\_800\_2\_ss\_c\_4lag | 1.837989 .9911879 1.13 0.259 .6387166 5.289049

sp77\_800\_ss\_c\_4lag | 1.507011 1.761648 0.35 0.726 .1524364 14.89856

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

sp77\_802\_ss\_c\_4lag | 1.276499 .7146324 0.44 0.663 .4260747 3.824329

sp77\_803\_ss\_c\_4lag | 1.408686 .5505373 0.88 0.381 .6548634 3.030244

sp77\_804\_ss\_c\_4lag | 1.075854 .2752814 0.29 0.775 .6515597 1.776447

sp77\_805\_ss\_c\_4lag | .7161512 .4685453 -0.51 0.610 .1986562 2.581709

sp77\_807\_1\_ss\_c\_4lag | .2528964 .1848276 -1.88 0.060 .0603737 1.059345

sp77\_807\_2\_ss\_c\_4lag | .6285706 .23104 -1.26 0.207 .305832 1.291889

sp77\_807\_3\_ss\_c\_4lag | 3.279824 1.269522 3.07 0.002 1.535946 7.003664

sp77\_807\_ss\_c\_4lag | 1.361312 .291218 1.44 0.149 .8950861 2.070382

sp77\_808\_ss\_c\_4lag | 2.700424 1.161608 2.31 0.021 1.1622 6.274555

sp77\_809\_ss\_c\_4lag | .9896645 .1571944 -0.07 0.948 .7249141 1.351106

sp77\_810\_ss\_c\_4lag | .9032086 .3855755 -0.24 0.812 .3912138 2.085268

sp77\_900\_1\_ss\_c\_4lag | 14.06175 15.87972 2.34 0.019 1.537412 128.614

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

sp77\_900\_ss\_c\_4lag | .4504524 .1629252 -2.20 0.027 .2217052 .9152126

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

sp77\_901\_ss\_c\_4lag | 1.107956 .3721164 0.31 0.760 .5736399 2.13996

sp77\_902\_3\_ss\_c\_4lag | 1.963613 2.489976 0.53 0.595 .1635622 23.57376

sp77\_902\_ss\_c\_4lag | 1.389436 .4454934 1.03 0.305 .7411718 2.604704

sp77\_903\_ss\_c\_4lag | 1.104114 .5424566 0.20 0.840 .4215163 2.892101

sp77\_904\_ss\_c\_4lag | 1.041638 .089712 0.47 0.636 .8798458 1.233183

mine\_time | .9975886 .0023532 -1.02 0.306 .992987 1.002211

onsite\_insp\_hours | 1.000834 .0002474 3.37 0.001 1.000349 1.001318

|

state |

AL | 2.308675 .5685693 3.40 0.001 1.424731 3.741042

AR | 2.073638 .3279805 4.61 0.000 1.520901 2.827253

CO | .8798318 .1828498 -0.62 0.538 .5854635 1.322207

IL | 1.686235 .207694 4.24 0.000 1.324571 2.146648

IN | 1.161872 .2855358 0.61 0.542 .7177469 1.880811

MD | 1.41808 .3989636 1.24 0.214 .8170024 2.461379

MT | .7982702 .1301141 -1.38 0.167 .5799737 1.098731

NM | 1.866569 .2041822 5.71 0.000 1.506371 2.312897

OH | 1.030192 .2740039 0.11 0.911 .6116754 1.735063

OK | 1.235781 .4893264 0.53 0.593 .5687157 2.685269

PA | 1.325623 .1535356 2.43 0.015 1.05641 1.663441

TN | 1.566149 .2468121 2.85 0.004 1.149982 2.132924

UT | .6929192 .1485801 -1.71 0.087 .4551585 1.054879

VA | .7247827 .0598457 -3.90 0.000 .6164866 .8521029

WV | 1.286587 .0859536 3.77 0.000 1.128685 1.46658

WY | 3.240672 .6518583 5.85 0.000 2.184824 4.806771

|

time |

2000.75 | 1.939511 .3990003 3.22 0.001 1.29593 2.902708

2001 | 2.189615 .4328225 3.96 0.000 1.486313 3.22571

2001.25 | 1.952646 .3898957 3.35 0.001 1.32026 2.887937

2001.5 | 2.340592 .4358567 4.57 0.000 1.624868 3.371579

2001.75 | 2.686959 .5277413 5.03 0.000 1.828428 3.94861

2002 | 2.126188 .421587 3.80 0.000 1.441528 3.136032

2002.25 | 1.692571 .330015 2.70 0.007 1.154997 2.48035

2002.5 | 2.361705 .465867 4.36 0.000 1.604423 3.476423

2002.75 | 2.36488 .4626241 4.40 0.000 1.611739 3.469951

2003 | 2.061868 .4182924 3.57 0.000 1.385406 3.06863

2003.25 | 2.102445 .4411244 3.54 0.000 1.393574 3.1719

2003.5 | 2.53931 .4871 4.86 0.000 1.743553 3.698251

2003.75 | 1.720876 .3442531 2.71 0.007 1.162708 2.546997

2004 | 1.843507 .3666504 3.08 0.002 1.248393 2.722313

2004.25 | 1.941604 .3826036 3.37 0.001 1.319553 2.856897

2004.5 | 1.667516 .3249551 2.62 0.009 1.138134 2.443132

2004.75 | 1.511446 .3035086 2.06 0.040 1.019684 2.24037

2005 | 1.392336 .2873064 1.60 0.109 .9291799 2.086355

2005.25 | 1.656507 .3379654 2.47 0.013 1.110526 2.470915

2005.5 | 1.601519 .3089161 2.44 0.015 1.097348 2.337329

2005.75 | 1.263956 .2575089 1.15 0.250 .8478413 1.884297

2006 | 1.800387 .3563681 2.97 0.003 1.22146 2.653704

2006.25 | 1.370013 .2620942 1.65 0.100 .9416362 1.99327

2006.5 | 1.673735 .318529 2.71 0.007 1.152642 2.430408

2006.75 | 1.404354 .270606 1.76 0.078 .9626265 2.048779

2007 | 1.316792 .2522566 1.44 0.151 .9045933 1.916819

2007.25 | 1.228456 .245323 1.03 0.303 .8305661 1.816957

2007.5 | 1.529577 .2938932 2.21 0.027 1.049594 2.229058

2007.75 | 1.489611 .2806425 2.12 0.034 1.02969 2.154959

2008 | 1.06093 .1966401 0.32 0.750 .7377666 1.525648

2008.25 | 1.239334 .258217 1.03 0.303 .8238333 1.864393

2008.5 | 1.331299 .2576755 1.48 0.139 .9110115 1.945482

2009 | .8775484 .1654283 -0.69 0.488 .6064702 1.269792

2009.25 | .8494934 .1674691 -0.83 0.408 .577237 1.250161

2009.5 | 1.086249 .2118918 0.42 0.671 .7411187 1.592103

2009.75 | .827527 .1716806 -0.91 0.361 .5510487 1.242723

2010 | .8979056 .1776132 -0.54 0.586 .6093347 1.323139

2010.25 | .9887209 .1968767 -0.06 0.955 .6692375 1.460721

2010.5 | 1.1673 .238066 0.76 0.448 .7826787 1.740931

2010.75 | .811219 .1620961 -1.05 0.295 .5483435 1.200117

2011 | 1.001617 .1940842 0.01 0.993 .6851151 1.464332

2011.25 | 1.063811 .2052955 0.32 0.749 .7287831 1.552853

2011.5 | 1.28158 .2459936 1.29 0.196 .8797542 1.866939

2011.75 | .7788968 .1537748 -1.27 0.206 .528969 1.146911

2012 | 1.129145 .2118211 0.65 0.517 .7817524 1.630911

2012.25 | 1.074886 .2165398 0.36 0.720 .7242434 1.595292

2012.5 | 1.348871 .2744029 1.47 0.141 .9053345 2.009702

2012.75 | .8281681 .172364 -0.91 0.365 .5507578 1.245307

2013 | .8480546 .1696927 -0.82 0.410 .5729298 1.255296

2013.25 | .6679939 .1397691 -1.93 0.054 .4432713 1.006643

2013.5 | .9069113 .1951079 -0.45 0.650 .5948973 1.382572

2013.75 | .9286129 .2007289 -0.34 0.732 .6079096 1.418504

2014 | .6105641 .1281551 -2.35 0.019 .4046385 .9212878

2014.25 | .7501341 .1641513 -1.31 0.189 .4885073 1.151879

2014.5 | .9012205 .1855294 -0.51 0.613 .6020031 1.34916

2014.75 | .8678955 .1823332 -0.67 0.500 .574965 1.310067

2015 | .8016217 .1752274 -1.01 0.312 .5222812 1.230367

2015.25 | .7869364 .1777264 -1.06 0.289 .5054745 1.225124

2015.5 | 1.181559 .256939 0.77 0.443 .7715337 1.809488

2015.75 | .5404555 .1305707 -2.55 0.011 .3366006 .8677705

2016 | .8769765 .1997604 -0.58 0.564 .5611755 1.370494

|

\_cons | 7.17e-06 1.17e-06 -72.77 0.000 5.21e-06 9.86e-06

lnhours | 1 (offset)

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Note: 0 failures and 4 successes completely determined.

**. lfit**

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

number of observations = 22355

number of covariate patterns = 22354

Pearson chi2(21997) = 128770.47

Prob > chi2 = 0.0000

**. linktest**

Iteration 0: log likelihood = -13329.022

Iteration 1: log likelihood = -10168.981

Iteration 2: log likelihood = -9964.4167

Iteration 3: log likelihood = -9963.6389

Iteration 4: log likelihood = -9963.6387

Logistic regression Number of obs = 22,355

LR chi2(2) = 6730.77

Prob > chi2 = 0.0000

Log likelihood = -9963.6387 Pseudo R2 = 0.2525

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

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

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

\_hat | 1.089025 .0207928 52.38 0.000 1.048271 1.129778

\_hatsq | .0646701 .0077832 8.31 0.000 .0494153 .0799248

\_cons | -.0546398 .0219922 -2.48 0.013 -.0977437 -.0115358

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

Note: 0 failures and 8 successes completely determined.

**. estat classification**

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 2979 1144 | 4123

- | 3359 14873 | 18232

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

Total | 6338 16017 | 22355

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

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Sensitivity Pr( +| D) 47.00%

Specificity Pr( -|~D) 92.86%

Positive predictive value Pr( D| +) 72.25%

Negative predictive value Pr(~D| -) 81.58%

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False + rate for true ~D Pr( +|~D) 7.14%

False - rate for true D Pr( -| D) 53.00%

False + rate for classified + Pr(~D| +) 27.75%

False - rate for classified - Pr( D| -) 18.42%

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

Correctly classified 79.86%

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

Variable | Obs Mean Std. Dev. Min Max

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

MR\_indicator | 30,289 .24187 .428223 0 1

spbssv3\_yhat | 22,355 .2835162 .243125 .0000335 1