. logit MR\_indicator `part\_sigandsub\_lag\_4\_vars' `covariates' ib(freq).state ib(freq).time, vce(cl mineid) offset(lnhours) iter(50) or

Iteration 0: log pseudolikelihood = -10693.202

Iteration 1: log pseudolikelihood = -10186.625

Iteration 2: log pseudolikelihood = -10182.679

Iteration 3: log pseudolikelihood = -10182.675

Iteration 4: log pseudolikelihood = -10182.675

Logistic regression Number of obs = 22,446

Wald chi2(81) = .

Log pseudolikelihood = -10182.675 Prob > chi2 = .

(Std. Err. adjusted for 1,293 clusters in mineid)

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

| Robust

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

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

p47\_ss\_c\_4lag | 1.249422 .4356796 0.64 0.523 .6307988 2.474727

p48\_ss\_c\_4lag | 1.040187 .0571443 0.72 0.473 .9340057 1.15844

p71\_ss\_c\_4lag | .7168754 .1892999 -1.26 0.207 .4272414 1.202857

p72\_ss\_c\_4lag | .9002983 .141866 -0.67 0.505 .6610845 1.226072

p75\_ss\_c\_4lag | 1.00642 .0013966 4.61 0.000 1.003686 1.009161

p77\_ss\_c\_4lag | 1.010653 .0301987 0.35 0.723 .9531644 1.071609

mine\_time | .9971329 .002363 -1.21 0.226 .9925123 1.001775

onsite\_insp\_hours | 1.000736 .0002659 2.77 0.006 1.000215 1.001257

|

state |

AL | 1.911222 .4353787 2.84 0.004 1.222943 2.986867

AR | 2.174889 .1594886 10.60 0.000 1.883723 2.511061

CO | .8603661 .177955 -0.73 0.467 .5736195 1.290455

IL | 1.684153 .1967601 4.46 0.000 1.339477 2.117521

IN | 1.086851 .240365 0.38 0.706 .7045643 1.676561

MD | 1.181375 .3148019 0.63 0.532 .7007573 1.991628

MT | .8282646 .0574465 -2.72 0.007 .7229891 .9488693

NM | 1.416907 .087333 5.65 0.000 1.255672 1.598845

OH | .9392954 .241842 -0.24 0.808 .5670768 1.555831

OK | 1.004609 .313212 0.01 0.988 .5452727 1.850889

PA | 1.29096 .1455442 2.27 0.023 1.035017 1.610194

TN | 1.468563 .2366649 2.38 0.017 1.070824 2.014036

UT | .6567019 .1420623 -1.94 0.052 .4297644 1.003474

VA | .7066322 .0633076 -3.88 0.000 .5928349 .8422733

WV | 1.219388 .0784912 3.08 0.002 1.074857 1.383354

WY | 2.924558 .1678993 18.69 0.000 2.613321 3.272864

|

time |

2000.75 | 1.762178 .3558558 2.81 0.005 1.186199 2.617834

2001 | 1.993528 .3847621 3.57 0.000 1.365638 2.910107

2001.25 | 1.792247 .3468157 3.02 0.003 1.226543 2.618863

2001.5 | 2.095157 .3828483 4.05 0.000 1.464456 2.997483

2001.75 | 2.392432 .4611895 4.53 0.000 1.639659 3.490807

2002 | 1.931378 .375074 3.39 0.001 1.319969 2.825991

2002.25 | 1.545343 .2986711 2.25 0.024 1.058064 2.257034

2002.5 | 2.165443 .4166055 4.02 0.000 1.485203 3.157242

2002.75 | 2.153355 .4157073 3.97 0.000 1.474994 3.143698

2003 | 1.899822 .3799447 3.21 0.001 1.283753 2.811541

2003.25 | 1.918587 .3940174 3.17 0.002 1.282837 2.869402

2003.5 | 2.338374 .4382235 4.53 0.000 1.619551 3.376242

2003.75 | 1.608565 .3104622 2.46 0.014 1.101924 2.348147

2004 | 1.750639 .3394553 2.89 0.004 1.197141 2.560045

2004.25 | 1.82528 .3471412 3.16 0.002 1.257313 2.649814

2004.5 | 1.560142 .303012 2.29 0.022 1.06621 2.282891

2004.75 | 1.421054 .2804578 1.78 0.075 .9652024 2.092199

2005 | 1.298946 .2622089 1.30 0.195 .8745107 1.929377

2005.25 | 1.597696 .3088825 2.42 0.015 1.093783 2.333763

2005.5 | 1.539539 .2880636 2.31 0.021 1.066896 2.221566

2005.75 | 1.209609 .2421563 0.95 0.342 .8170333 1.790814

2006 | 1.707497 .3293416 2.77 0.006 1.169985 2.49195

2006.25 | 1.309044 .248642 1.42 0.156 .9021438 1.899472

2006.5 | 1.59858 .2996565 2.50 0.012 1.10707 2.308306

2006.75 | 1.321223 .2498855 1.47 0.141 .9119832 1.914104

2007 | 1.26544 .2368829 1.26 0.209 .8768022 1.826339

2007.25 | 1.181989 .2322831 0.85 0.395 .8041484 1.737363

2007.5 | 1.446584 .2708644 1.97 0.049 1.002216 2.087979

2007.75 | 1.453287 .2691575 2.02 0.044 1.01089 2.089292

2008 | 1.011372 .1843298 0.06 0.951 .7075765 1.445601

2008.25 | 1.194256 .2414494 0.88 0.380 .8035356 1.774964

2008.5 | 1.317672 .2476151 1.47 0.142 .911697 1.904425

2009 | .9040391 .1675508 -0.54 0.586 .6286793 1.300006

2009.25 | .8705568 .1661789 -0.73 0.468 .5988429 1.265556

2009.5 | 1.082359 .2050112 0.42 0.676 .7466966 1.568912

2009.75 | .809511 .1626356 -1.05 0.293 .5460234 1.200147

2010 | .8589285 .1615565 -0.81 0.419 .5940922 1.241824

2010.25 | .952189 .1838987 -0.25 0.800 .6521214 1.39033

2010.5 | 1.120582 .2235127 0.57 0.568 .7579869 1.656629

2010.75 | .797655 .1522148 -1.18 0.236 .5487596 1.159439

2011 | .9834715 .1821623 -0.09 0.928 .6840677 1.413919

2011.25 | 1.051175 .1942113 0.27 0.787 .7318298 1.509871

2011.5 | 1.275495 .2353586 1.32 0.187 .8884072 1.83124

2011.75 | .8084562 .1506462 -1.14 0.254 .5611063 1.164844

2012 | 1.145107 .2063158 0.75 0.452 .8044214 1.630078

2012.25 | 1.08711 .208538 0.44 0.663 .74643 1.58328

2012.5 | 1.366396 .2679271 1.59 0.111 .9304018 2.006702

2012.75 | .8318054 .168907 -0.91 0.364 .5586968 1.238418

2013 | .8473267 .1663719 -0.84 0.399 .5766578 1.245041

2013.25 | .678311 .1367795 -1.92 0.054 .4568635 1.007097

2013.5 | .9234885 .1901714 -0.39 0.699 .6168023 1.382665

2013.75 | .926591 .1959161 -0.36 0.718 .6122265 1.402375

2014 | .6171461 .1254111 -2.38 0.018 .4143947 .9190978

2014.25 | .7644176 .1634808 -1.26 0.209 .5026781 1.162442

2014.5 | .9083011 .1846364 -0.47 0.636 .6098183 1.35288

2014.75 | .888842 .1835441 -0.57 0.568 .5929979 1.332281

2015 | .8231485 .1740325 -0.92 0.357 .5438945 1.245781

2015.25 | .8118306 .1788316 -0.95 0.344 .5271826 1.250172

2015.5 | 1.199211 .2548392 0.85 0.393 .7906977 1.818783

2015.75 | .5629683 .1308292 -2.47 0.013 .3570029 .8877612

2016 | .9170064 .2070136 -0.38 0.701 .5891342 1.42735

|

\_cons | 7.99e-06 1.26e-06 -74.40 0.000 5.87e-06 .0000109

lnhours | 1 (offset)

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

. lfit

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

number of observations = 22446

number of covariate patterns = 22443

Pearson chi2(22357) = 142655.22

Prob > chi2 = 0.0000

. linktest

Iteration 0: log likelihood = -13411.179

Iteration 1: log likelihood = -10250.747

Iteration 2: log likelihood = -10160.765

Iteration 3: log likelihood = -10155.185

Iteration 4: log likelihood = -10155.122

Iteration 5: log likelihood = -10155.122

Logistic regression Number of obs = 22,446

LR chi2(2) = 6512.11

Prob > chi2 = 0.0000

Log likelihood = -10155.122 Pseudo R2 = 0.2428

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

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

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

\_hat | 1.083855 .0206811 52.41 0.000 1.043321 1.124389

\_hatsq | .0625245 .0079955 7.82 0.000 .0468535 .0781954

\_cons | -.052186 .0218788 -2.39 0.017 -.0950676 -.0093044

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

. estat classification

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 2933 1161 | 4094

- | 3461 14891 | 18352

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

Total | 6394 16052 | 22446

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

True D defined as MR\_indicator != 0

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

Sensitivity Pr( +| D) 45.87%

Specificity Pr( -|~D) 92.77%

Positive predictive value Pr( D| +) 71.64%

Negative predictive value Pr(~D| -) 81.14%

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

False + rate for true ~D Pr( +|~D) 7.23%

False - rate for true D Pr( -| D) 54.13%

False + rate for classified + Pr(~D| +) 28.36%

False - rate for classified - Pr( D| -) 18.86%

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

Correctly classified 79.41%

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

. summ MR\_indicator pbssv3\_yhat

Variable | Obs Mean Std. Dev. Min Max

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

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

pbssv3\_yhat | 22,446 .2848614 .2392453 .0000255 .985486