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

Iteration 0: log pseudolikelihood = -6029.1764

Iteration 1: log pseudolikelihood = -5765.0174

Iteration 2: log pseudolikelihood = -5763.3506

Iteration 3: log pseudolikelihood = -5763.3498

Iteration 4: log pseudolikelihood = -5763.3498

Logistic regression Number of obs = 13,003

Wald chi2(56) = .

Log pseudolikelihood = -5763.3498 Prob > chi2 = .

(Std. Err. adjusted for 808 clusters in mineid)

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| Robust

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

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

p47\_pp\_c\_4lag | .9985771 .0012899 -1.10 0.270 .9960521 1.001109

p48\_pp\_c\_4lag | 1.000158 .000268 0.59 0.556 .9996329 1.000683

p71\_pp\_c\_4lag | 1.001583 .0017232 0.92 0.358 .9982117 1.004967

p72\_pp\_c\_4lag | .9992419 .0008701 -0.87 0.384 .997538 1.000949

p75\_pp\_c\_4lag | 1.000026 7.69e-06 3.41 0.001 1.000011 1.000041

p77\_pp\_c\_4lag | .9999767 .0002532 -0.09 0.927 .9994804 1.000473

mine\_time | .9965785 .0025382 -1.35 0.178 .9916162 1.001566

onsite\_insp\_hours | 1.00047 .0002765 1.70 0.089 .9999284 1.001012

|

state |

AL | 2.089398 .5953041 2.59 0.010 1.195363 3.6521

AR | 2.780722 .2458952 11.57 0.000 2.338229 3.306953

CO | .7661416 .1958097 -1.04 0.297 .4642584 1.264324

IL | 1.481928 .1978434 2.95 0.003 1.140744 1.925156

IN | .9266754 .2651757 -0.27 0.790 .5288706 1.6237

KY | .9482035 .0786861 -0.64 0.522 .8058703 1.115676

MD | 1.238776 .3029391 0.88 0.381 .7670681 2.000561

MT | .6062736 .0665545 -4.56 0.000 .4889077 .7518141

NM | 1.199787 .1509772 1.45 0.148 .9375441 1.535382

OH | .7460145 .2028965 -1.08 0.281 .4377666 1.271311

OK | .8123806 .4374576 -0.39 0.700 .2827466 2.334112

PA | 1.050627 .1617771 0.32 0.748 .7769256 1.420751

TN | 1.24701 .2116198 1.30 0.193 .8941685 1.739083

UT | .5906304 .1762243 -1.76 0.078 .3291136 1.059951

VA | .6645869 .0767688 -3.54 0.000 .5299397 .8334452

WY | 2.449164 .2481773 8.84 0.000 2.008004 2.987249

|

time |

2007 | 1.444673 .2701309 1.97 0.049 1.001402 2.084159

2007.25 | 1.317344 .2510721 1.45 0.148 .9067116 1.913945

2007.5 | 1.560771 .2891021 2.40 0.016 1.085603 2.243921

2007.75 | 1.536447 .2815349 2.34 0.019 1.072866 2.20034

2008 | 1.044439 .1881662 0.24 0.809 .73372 1.486742

2008.25 | 1.215243 .2443197 0.97 0.332 .8194689 1.802162

2008.5 | 1.326164 .2479202 1.51 0.131 .9193249 1.913046

2009 | .9005706 .1653186 -0.57 0.568 .6284372 1.290546

2009.25 | .864746 .164691 -0.76 0.445 .5953565 1.25603

2009.5 | 1.066319 .2004639 0.34 0.733 .7376741 1.54138

2009.75 | .7960931 .159421 -1.14 0.255 .5376593 1.178747

2010 | .8486413 .1588926 -0.88 0.381 .5879659 1.224887

2010.25 | .9485992 .182785 -0.27 0.784 .6502273 1.383886

2010.5 | 1.132634 .2254017 0.63 0.531 .766822 1.672955

2010.75 | .8125377 .1540452 -1.09 0.274 .5603614 1.1782

2011 | 1.002098 .185572 0.01 0.991 .6970789 1.440584

2011.25 | 1.074436 .1983463 0.39 0.697 .7482461 1.542825

2011.5 | 1.293981 .2384754 1.40 0.162 .9016849 1.856953

2011.75 | .8129487 .1510864 -1.11 0.265 .5647646 1.170197

2012 | 1.143138 .2057657 0.74 0.457 .8033078 1.626731

2012.25 | 1.073149 .206861 0.37 0.714 .7354986 1.565807

2012.5 | 1.343807 .261742 1.52 0.129 .9173662 1.968479

2012.75 | .8180849 .1643294 -1.00 0.318 .5518446 1.212774

2013 | .8381377 .1639735 -0.90 0.367 .5711971 1.229829

2013.25 | .6791198 .1375985 -1.91 0.056 .4565432 1.010208

2013.5 | .9206854 .1914822 -0.40 0.691 .6124635 1.38402

2013.75 | .9084597 .1915477 -0.46 0.649 .6009395 1.373348

2014 | .6240766 .1271333 -2.31 0.021 .4186355 .9303359

2014.25 | .7685614 .1640139 -1.23 0.217 .5058583 1.167692

2014.5 | .9121904 .1816546 -0.46 0.644 .6174137 1.347705

2014.75 | .8916716 .1829491 -0.56 0.576 .5964298 1.333063

2015 | .8236139 .1736399 -0.92 0.357 .5448382 1.24503

2015.25 | .8112864 .1794067 -0.95 0.344 .5259455 1.251433

2015.5 | 1.195755 .2544029 0.84 0.401 .7880339 1.814428

2015.75 | .5573348 .1295443 -2.52 0.012 .3534003 .8789526

2016 | .9188111 .2060095 -0.38 0.706 .5920736 1.42586

|

\_cons | 9.49e-06 1.49e-06 -73.45 0.000 6.97e-06 .0000129

lnhours | 1 (offset)

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

. lfit

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

number of observations = 13003

number of covariate patterns = 13003

Pearson chi2(12942) = 42492.00

Prob > chi2 = 0.0000

. linktest

Iteration 0: log likelihood = -7708.4335

Iteration 1: log likelihood = -5848.1481

Iteration 2: log likelihood = -5771.0514

Iteration 3: log likelihood = -5761.1115

Iteration 4: log likelihood = -5761.0069

Iteration 5: log likelihood = -5761.0069

Logistic regression Number of obs = 13,003

LR chi2(2) = 3894.85

Prob > chi2 = 0.0000

Log likelihood = -5761.0069 Pseudo R2 = 0.2526

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

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

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

\_hat | 1.04674 .0272704 38.38 0.000 .9932907 1.100189

\_hatsq | .0246588 .0116104 2.12 0.034 .0019028 .0474149

\_cons | -.0104495 .0289044 -0.36 0.718 -.0671011 .0462021

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

. estat classification

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 1689 689 | 2378

- | 1950 8675 | 10625

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

Total | 3639 9364 | 13003

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

True D defined as MR\_indicator != 0

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

Sensitivity Pr( +| D) 46.41%

Specificity Pr( -|~D) 92.64%

Positive predictive value Pr( D| +) 71.03%

Negative predictive value Pr(~D| -) 81.65%

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

False + rate for true ~D Pr( +|~D) 7.36%

False - rate for true D Pr( -| D) 53.59%

False + rate for classified + Pr(~D| +) 28.97%

False - rate for classified - Pr( D| -) 18.35%

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

Correctly classified 79.70%

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

. summ MR\_indicator pbpp3\_yhat

Variable | Obs Mean Std. Dev. Min Max

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

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

pbpp3\_yhat | 22,446 .2477308 .2242545 9.63e-06 .9865299