**. logit MR\_indicator `part\_penaltypoints\_lag\_1\_vars' `covariates' ib(freq).state ib(freq).time if sample\_pp, vce(cl mineid) offset(lnhours) iter(50) or**

Iteration 0: log pseudolikelihood = -6453.1968

Iteration 1: log pseudolikelihood = -6161.988

Iteration 2: log pseudolikelihood = -6160.1606

Iteration 3: log pseudolikelihood = -6160.1597

Iteration 4: log pseudolikelihood = -6160.1597

Logistic regression Number of obs = 14,208

Wald chi2(56) = .

Log pseudolikelihood = -6160.1597 Prob > chi2 = .

(Std. Err. adjusted for 867 clusters in mineid)

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| Robust

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

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

p47\_pp\_1lag | .9991 .0021635 -0.42 0.678 .9948685 1.003349

p48\_pp\_1lag | .9998148 .0004157 -0.45 0.656 .9990003 1.00063

p71\_pp\_1lag | 1.006579 .0032537 2.03 0.042 1.000222 1.012977

p72\_pp\_1lag | 1.000048 .0016459 0.03 0.977 .9968268 1.003279

p75\_pp\_1lag | 1.000069 .000022 3.14 0.002 1.000026 1.000112

p77\_pp\_1lag | 1.000248 .0004541 0.55 0.585 .9993586 1.001139

mine\_time | .997366 .0024171 -1.09 0.276 .9926399 1.002115

onsite\_insp\_hours | 1.000612 .0002694 2.27 0.023 1.000084 1.00114

|

state |

AL | 2.060453 .5361976 2.78 0.005 1.237235 3.431416

AR | 2.446921 .2052349 10.67 0.000 2.075992 2.884126

CO | .7293923 .1735252 -1.33 0.185 .4575696 1.162694

IL | 1.504394 .2140789 2.87 0.004 1.138239 1.988335

IN | .9887079 .2667725 -0.04 0.966 .582636 1.677794

KY | .9647768 .0772483 -0.45 0.654 .8246551 1.128707

MD | 1.236383 .2857155 0.92 0.359 .7860481 1.94472

MT | .5322977 .0459041 -7.31 0.000 .44952 .6303187

NM | 1.158664 .104792 1.63 0.103 .9704498 1.383382

OH | .740963 .2006952 -1.11 0.268 .435755 1.259942

OK | .8122757 .4369731 -0.39 0.699 .2830022 2.331402

PA | 1.012116 .154615 0.08 0.937 .7502346 1.365411

TN | 1.263682 .19711 1.50 0.134 .9308227 1.715572

UT | .5762377 .1722744 -1.84 0.065 .3207177 1.035334

VA | .6621278 .0773339 -3.53 0.000 .5266534 .8324512

WY | 2.357154 .1746612 11.57 0.000 2.038521 2.72559

|

time |

2007 | 1.484209 .2645586 2.22 0.027 1.046573 2.104848

2007.25 | 1.420541 .2572961 1.94 0.053 .9960461 2.025947

2007.5 | 1.625209 .2855903 2.76 0.006 1.151679 2.293437

2007.75 | 1.602303 .2817551 2.68 0.007 1.135184 2.261639

2008 | 1.178627 .2031451 0.95 0.340 .8407474 1.652294

2008.25 | 1.274608 .2424744 1.28 0.202 .8779078 1.850566

2008.5 | 1.340931 .2384247 1.65 0.099 .9463645 1.900005

2009 | 1.035189 .1851252 0.19 0.847 .7291171 1.469745

2009.25 | .9257151 .1703011 -0.42 0.675 .6454822 1.32761

2009.5 | 1.14172 .2074702 0.73 0.466 .7996158 1.630187

2009.75 | .8676664 .1668726 -0.74 0.460 .5951778 1.264908

2010 | .9320169 .1671769 -0.39 0.695 .6557568 1.324661

2010.25 | 1.002738 .1870415 0.01 0.988 .6956839 1.445316

2010.5 | 1.225714 .2355974 1.06 0.290 .8409646 1.78649

2010.75 | .9282183 .1689287 -0.41 0.682 .6497374 1.326058

2011 | 1.215109 .2167511 1.09 0.275 .8566002 1.723664

2011.25 | 1.198742 .2138291 1.02 0.310 .8450653 1.70044

2011.5 | 1.384972 .2432417 1.85 0.064 .981624 1.954056

2011.75 | .9249651 .1656644 -0.44 0.663 .6511368 1.313949

2012 | 1.251077 .218824 1.28 0.200 .8879766 1.762651

2012.25 | 1.175213 .2193587 0.86 0.387 .8151476 1.694327

2012.5 | 1.356331 .255845 1.62 0.106 .9371376 1.963035

2012.75 | .8739724 .1702874 -0.69 0.489 .5965503 1.280408

2013 | .8832817 .1663392 -0.66 0.510 .6106627 1.277606

2013.25 | .7394801 .1463737 -1.52 0.127 .5016936 1.08997

2013.5 | .9445108 .1899437 -0.28 0.777 .6368365 1.400831

2013.75 | .9696674 .199819 -0.15 0.881 .6474646 1.452211

2014 | .6696483 .1329747 -2.02 0.043 .4537538 .9882646

2014.25 | .8226352 .1690411 -0.95 0.342 .5499157 1.230604

2014.5 | .9392827 .1804358 -0.33 0.744 .6445859 1.368711

2014.75 | .9677095 .1942311 -0.16 0.870 .6529778 1.43414

2015 | .9168564 .190527 -0.42 0.676 .6101234 1.377796

2015.25 | .8910961 .1917894 -0.54 0.592 .5844153 1.358712

2015.5 | 1.292489 .2670355 1.24 0.214 .8621119 1.937715

2015.75 | .6094932 .1377255 -2.19 0.028 .391404 .9491011

2016 | .9752215 .2147543 -0.11 0.909 .6333729 1.501575

|

\_cons | 8.70e-06 1.30e-06 -78.23 0.000 6.50e-06 .0000117

lnhours | 1 (offset)

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**. lfit**

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

number of observations = 14208

number of covariate patterns = 14208

Pearson chi2(14147) = 42821.35

Prob > chi2 = 0.0000

**. linktest**

Iteration 0: log likelihood = -8233.5614

Iteration 1: log likelihood = -6260.0786

Iteration 2: log likelihood = -6169.7622

Iteration 3: log likelihood = -6157.2837

Iteration 4: log likelihood = -6157.119

Iteration 5: log likelihood = -6157.119

Logistic regression Number of obs = 14,208

LR chi2(2) = 4152.88

Prob > chi2 = 0.0000

Log likelihood = -6157.119 Pseudo R2 = 0.2522

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

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

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

\_hat | 1.05047 .0270101 38.89 0.000 .9975315 1.103409

\_hatsq | .0272759 .0110538 2.47 0.014 .0056108 .048941

\_cons | -.0123709 .0283274 -0.44 0.662 -.0678916 .0431498

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

**. estat classification**

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 1693 688 | 2381

- | 2090 9737 | 11827

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

Total | 3783 10425 | 14208

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

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Sensitivity Pr( +| D) 44.75%

Specificity Pr( -|~D) 93.40%

Positive predictive value Pr( D| +) 71.10%

Negative predictive value Pr(~D| -) 82.33%

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

False + rate for true ~D Pr( +|~D) 6.60%

False - rate for true D Pr( -| D) 55.25%

False + rate for classified + Pr(~D| +) 28.90%

False - rate for classified - Pr( D| -) 17.67%

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

Correctly classified 80.45%

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

**. summ MR\_indicator pbpp2\_yhat**

Variable | Obs Mean Std. Dev. Min Max

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

MR\_indicator | 30,289 .2418700 .4282230 0 1

pbpp2\_yhat | 26,110 .2270675 .2164308 9.02e-06 .9864157