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

Iteration 0: log pseudolikelihood = -4255.3044

Iteration 1: log pseudolikelihood = -4079.3748

Iteration 2: log pseudolikelihood = -4078.2014

Iteration 3: log pseudolikelihood = -4078.2008

Iteration 4: log pseudolikelihood = -4078.2008

Logistic regression Number of obs = 9,110

Wald chi2(56) = .

Log pseudolikelihood = -4078.2008 Prob > chi2 = .

(Std. Err. adjusted for 590 clusters in mineid)

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| Robust

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

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

p47\_pp\_c\_lag\_all | .9990342 .0011351 -0.85 0.395 .996812 1.001261

p48\_pp\_c\_lag\_all | 1.000198 .0001876 1.06 0.290 .9998306 1.000566

p71\_pp\_c\_lag\_all | 1.00235 .0012587 1.87 0.062 .9998865 1.00482

p72\_pp\_c\_lag\_all | .9995594 .0005957 -0.74 0.460 .9983925 1.000728

p75\_pp\_c\_lag\_all | 1.000004 1.76e-06 2.07 0.038 1 1.000007

p77\_pp\_c\_lag\_all | .9999784 .0000958 -0.23 0.822 .9997906 1.000166

mine\_time | .99558 .0034202 -1.29 0.197 .9888991 1.002306

onsite\_insp\_hours | 1.000595 .0002923 2.04 0.042 1.000022 1.001168

|

state |

AL | 1.971152 .5413751 2.47 0.013 1.150637 3.376773

CO | .8166275 .2570074 -0.64 0.520 .4406924 1.513256

IL | 1.574149 .214698 3.33 0.001 1.204898 2.056559

IN | 1.154422 .361841 0.46 0.647 .6245464 2.133853

MD | 1.62168 .4435843 1.77 0.077 .9487084 2.772028

NM | .8921416 .2074846 -0.49 0.624 .5655495 1.407333

OH | .8073741 .2460455 -0.70 0.483 .4442966 1.467157

OK | .8395112 .4510093 -0.33 0.745 .2929118 2.406114

PA | .9638826 .1820402 -0.19 0.846 .6656793 1.395672

TN | 1.291161 .2445103 1.35 0.177 .8908126 1.871434

UT | .8534591 .1858416 -0.73 0.467 .5569712 1.307774

VA | .6594406 .1014838 -2.71 0.007 .4877317 .8916006

WV | 1.006965 .1037632 0.07 0.946 .822814 1.232329

WY | 2.241546 .3927867 4.61 0.000 1.589979 3.160123

|

time |

2007 | 1.129481 .2257702 0.61 0.542 .7633675 1.671184

2007.25 | .9800337 .2188178 -0.09 0.928 .6326862 1.518077

2007.5 | 1.29488 .259385 1.29 0.197 .8744207 1.917515

2007.75 | 1.361417 .2784352 1.51 0.131 .9118109 2.032721

2008 | .9354604 .1934988 -0.32 0.747 .6236708 1.403122

2008.25 | .9935073 .2169565 -0.03 0.976 .6475756 1.524234

2008.5 | 1.112571 .2298999 0.52 0.606 .7420566 1.668087

2009 | .8421239 .1690536 -0.86 0.392 .5681985 1.248107

2009.25 | .8700152 .1918462 -0.63 0.528 .5647148 1.340369

2009.5 | .9188176 .1912072 -0.41 0.684 .611073 1.381546

2009.75 | .6935709 .1543939 -1.64 0.100 .4483397 1.072938

2010 | .7254338 .1520238 -1.53 0.126 .4810806 1.0939

2010.25 | .8139506 .1790749 -0.94 0.349 .5288441 1.252762

2010.5 | .998438 .2295564 -0.01 0.995 .6362336 1.566843

2010.75 | .8821295 .1932683 -0.57 0.567 .5741695 1.355266

2011 | .9916107 .2081498 -0.04 0.968 .6571504 1.496296

2011.25 | .9454175 .2002467 -0.26 0.791 .6242128 1.431906

2011.5 | 1.064504 .2283179 0.29 0.771 .6991638 1.620748

2011.75 | .6620364 .1519427 -1.80 0.072 .4222058 1.038101

2012 | .8198847 .1697735 -0.96 0.338 .5463797 1.2303

2012.25 | .7696848 .1719541 -1.17 0.241 .4967608 1.192555

2012.5 | 1.223689 .2810565 0.88 0.379 .7801305 1.919441

2012.75 | .6819344 .1586722 -1.65 0.100 .4322006 1.075969

2013 | .5786134 .1294261 -2.45 0.014 .3732407 .8969909

2013.25 | .512393 .1188283 -2.88 0.004 .3252387 .8072427

2013.5 | .649732 .1535962 -1.82 0.068 .4087999 1.032661

2013.75 | .7513044 .1917107 -1.12 0.262 .4556322 1.238846

2014 | .537174 .1277859 -2.61 0.009 .3369973 .8562557

2014.25 | .690886 .1757044 -1.45 0.146 .4196922 1.137318

2014.5 | .7686033 .1828357 -1.11 0.269 .4821897 1.225142

2014.75 | .8162668 .2026484 -0.82 0.414 .5017769 1.327864

2015 | .7478604 .1952561 -1.11 0.266 .4483152 1.247549

2015.25 | .6200679 .1635827 -1.81 0.070 .3697262 1.039916

2015.5 | .8774604 .2282133 -0.50 0.615 .5270401 1.460869

2015.75 | .5087814 .1465478 -2.35 0.019 .2893036 .8947643

2016 | .7454841 .206521 -1.06 0.289 .4331423 1.283058

|

\_cons | .0000115 1.98e-06 -65.80 0.000 8.16e-06 .0000161

lnhours | 1 (offset)

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

. lfit

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

number of observations = 9110

number of covariate patterns = 9109

Pearson chi2(9050) = 9545.98

Prob > chi2 = 0.0001

. linktest

Iteration 0: log likelihood = -5645.5157

Iteration 1: log likelihood = -4137.0523

Iteration 2: log likelihood = -4083.0509

Iteration 3: log likelihood = -4076.9692

Iteration 4: log likelihood = -4076.9155

Iteration 5: log likelihood = -4076.9155

Logistic regression Number of obs = 9,110

LR chi2(2) = 3137.20

Prob > chi2 = 0.0000

Log likelihood = -4076.9155 Pseudo R2 = 0.2778

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

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

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

\_hat | 1.041747 .0287286 36.26 0.000 .98544 1.098054

\_hatsq | .0186733 .0136414 1.37 0.171 -.0080634 .0454099

\_cons | -.0077946 .0340622 -0.23 0.819 -.0745553 .0589662

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

. estat classification

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 1576 597 | 2173

- | 1255 5682 | 6937

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

Total | 2831 6279 | 9110

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

True D defined as MR\_indicator != 0

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

Sensitivity Pr( +| D) 55.67%

Specificity Pr( -|~D) 90.49%

Positive predictive value Pr( D| +) 72.53%

Negative predictive value Pr(~D| -) 81.91%

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

False + rate for true ~D Pr( +|~D) 9.51%

False - rate for true D Pr( -| D) 44.33%

False + rate for classified + Pr(~D| +) 27.47%

False - rate for classified - Pr( D| -) 18.09%

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

Correctly classified 79.67%

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

. summ MR\_indicator pbpp4\_yhat

Variable | Obs Mean Std. Dev. Min Max

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

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

pbpp4\_yhat | 19,291 .2676332 .2377759 .0000116 .9787676