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

Iteration 0: log pseudolikelihood = -12187.002

Iteration 1: log pseudolikelihood = -11585.828

Iteration 2: log pseudolikelihood = -11580.904

Iteration 3: log pseudolikelihood = -11580.899

Iteration 4: log pseudolikelihood = -11580.899

Logistic regression Number of obs = 26,110

Wald chi2(84) = .

Log pseudolikelihood = -11580.899 Prob > chi2 = .

(Std. Err. adjusted for 1,475 clusters in mineid)

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| Robust

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

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

p47\_1lag | .995303 .141202 -0.03 0.974 .753697 1.314359

p48\_1lag | .9799002 .023846 -0.83 0.404 .93426 1.02777

p71\_1lag | 1.421454 .2349126 2.13 0.033 1.028162 1.965189

p72\_1lag | 1.002157 .0830771 0.03 0.979 .8518686 1.17896

p75\_1lag | 1.006428 .0014677 4.39 0.000 1.003555 1.009308

p77\_1lag | .9936266 .0226029 -0.28 0.779 .9502989 1.03893

mine\_time | .9976375 .0022163 -1.06 0.287 .993303 1.001991

onsite\_insp\_hours | 1.000776 .0002578 3.01 0.003 1.000271 1.001282

|

state |

AL | 2.005607 .4402688 3.17 0.002 1.30434 3.083903

AR | 2.370385 .157325 13.00 0.000 2.081247 2.699691

CO | .8256916 .1635659 -0.97 0.334 .5600136 1.217411

IL | 1.634167 .1964033 4.09 0.000 1.291202 2.068228

IN | 1.055331 .2252284 0.25 0.801 .6945851 1.603437

MD | 1.147389 .3009075 0.52 0.600 .6862455 1.918411

MT | .7682311 .0518486 -3.91 0.000 .6730441 .8768801

NM | 1.345226 .0813892 4.90 0.000 1.194801 1.514589

OH | .9481191 .235666 -0.21 0.830 .5824878 1.543259

OK | 1.082864 .3053892 0.28 0.778 .6230428 1.882043

PA | 1.308422 .1368717 2.57 0.010 1.065873 1.606167

TN | 1.51296 .2392598 2.62 0.009 1.109732 2.062702

UT | .6547391 .1352776 -2.05 0.040 .4367159 .9816068

VA | .7377537 .0593037 -3.78 0.000 .6302144 .8636434

WV | 1.232324 .0743951 3.46 0.001 1.094809 1.387113

WY | 2.5244 .1440387 16.23 0.000 2.257303 2.823102

|

time |

2000.25 | .9126732 .1452084 -0.57 0.566 .6681703 1.246647

2000.5 | 1.291273 .2037042 1.62 0.105 .9478442 1.759134

2000.75 | .7787167 .1235201 -1.58 0.115 .5706395 1.062667

2001 | .8478206 .1335047 -1.05 0.294 .6226827 1.154359

2001.25 | .7852964 .1299674 -1.46 0.144 .5677522 1.086197

2001.75 | .9423889 .1498799 -0.37 0.709 .6900061 1.287086

2002 | .832845 .1267224 -1.20 0.229 .6180858 1.122224

2002.25 | .6685318 .1117263 -2.41 0.016 .481801 .9276335

2002.5 | .9366019 .1531504 -0.40 0.689 .679781 1.29045

2002.75 | .9154292 .1513547 -0.53 0.593 .6620477 1.265786

2003 | .758193 .1306453 -1.61 0.108 .5408889 1.0628

2003.25 | .7657051 .1290125 -1.58 0.113 .5503563 1.065318

2003.5 | .9843424 .1651316 -0.09 0.925 .7085166 1.367547

2003.75 | .6468151 .1096607 -2.57 0.010 .4639464 .9017631

2004 | .7496655 .1273477 -1.70 0.090 .5373678 1.045836

2004.25 | .7535771 .122577 -1.74 0.082 .5478619 1.036536

2004.5 | .6702271 .1157893 -2.32 0.021 .4777132 .9403223

2004.75 | .598874 .1113268 -2.76 0.006 .4160088 .8621211

2005 | .5653868 .0957278 -3.37 0.001 .4057191 .7878905

2005.25 | .7149253 .1150652 -2.09 0.037 .5215094 .9800747

2005.5 | .6313994 .1048209 -2.77 0.006 .4560298 .8742088

2005.75 | .5118929 .0849903 -4.03 0.000 .369703 .70877

2006 | .7520618 .1256286 -1.71 0.088 .5420809 1.043381

2006.25 | .6049292 .1021813 -2.98 0.003 .4344345 .8423348

2006.5 | .6450293 .1072536 -2.64 0.008 .4656335 .8935415

2006.75 | .6002998 .1058211 -2.89 0.004 .4249306 .8480439

2007 | .5496023 .091529 -3.59 0.000 .3965447 .7617367

2007.25 | .5244263 .0925699 -3.66 0.000 .3710507 .7412003

2007.5 | .634054 .1057387 -2.73 0.006 .4572721 .8791799

2007.75 | .632332 .1064165 -2.72 0.006 .4546682 .8794187

2008 | .4613243 .0797875 -4.47 0.000 .3286914 .6474771

2008.25 | .4966349 .0866986 -4.01 0.000 .352729 .6992514

2008.5 | .5193671 .0876692 -3.88 0.000 .3730711 .7230317

2008.75 | .3863198 .0667597 -5.50 0.000 .2753287 .5420539

2009 | .3988724 .0711735 -5.15 0.000 .2811567 .5658737

2009.25 | .3551012 .0625585 -5.88 0.000 .2514173 .5015441

2009.5 | .438393 .0772346 -4.68 0.000 .3103858 .619192

2009.75 | .3332313 .0610709 -6.00 0.000 .2326737 .4772483

2010 | .3570429 .065493 -5.61 0.000 .2492201 .5115143

2010.25 | .3829886 .0712423 -5.16 0.000 .2659795 .551472

2010.5 | .4695683 .0841616 -4.22 0.000 .3304733 .667208

2010.75 | .3541768 .0646639 -5.69 0.000 .2476348 .5065572

2011 | .4661667 .0844839 -4.21 0.000 .3267962 .6649752

2011.25 | .4597886 .0804206 -4.44 0.000 .3263446 .6477987

2011.5 | .5363703 .0906222 -3.69 0.000 .3851681 .7469285

2011.75 | .3557507 .0641507 -5.73 0.000 .2498348 .5065689

2012 | .4824714 .0854277 -4.12 0.000 .3410009 .6826335

2012.25 | .452436 .082642 -4.34 0.000 .3162836 .6471987

2012.5 | .5212813 .0938628 -3.62 0.000 .3662717 .7418924

2012.75 | .3329786 .0635249 -5.76 0.000 .2291004 .4839569

2013 | .3343115 .0610356 -6.00 0.000 .2337473 .4781411

2013.25 | .2795348 .055055 -6.47 0.000 .1900158 .4112272

2013.5 | .3588558 .0712186 -5.16 0.000 .243215 .5294801

2013.75 | .3741232 .075321 -4.88 0.000 .252142 .5551166

2014 | .2508117 .0513607 -6.75 0.000 .167896 .3746754

2014.25 | .3089365 .0637403 -5.69 0.000 .2061807 .4629034

2014.5 | .3553433 .0707012 -5.20 0.000 .2405959 .5248172

2014.75 | .3650412 .0724765 -5.08 0.000 .2473668 .5386941

2015 | .343659 .0736494 -4.98 0.000 .2257913 .5230561

2015.25 | .3335342 .0735908 -4.98 0.000 .2164371 .5139831

2015.5 | .4878585 .1047116 -3.34 0.001 .3203289 .7430049

2015.75 | .2274865 .0512299 -6.57 0.000 .1463071 .3537088

2016 | .3615424 .082673 -4.45 0.000 .2309496 .5659803

|

\_cons | .0000186 2.29e-06 -88.29 0.000 .0000146 .0000237

lnhours | 1 (offset)

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

**. lfit**

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

number of observations = 26110

number of covariate patterns = 26092

Pearson chi2(26004) = 182893.18

Prob > chi2 = 0.0000

**. linktest**

Iteration 0: log likelihood = -15202.263

Iteration 1: log likelihood = -11643.837

Iteration 2: log likelihood = -11534.466

Iteration 3: log likelihood = -11529.61

Iteration 4: log likelihood = -11529.56

Iteration 5: log likelihood = -11529.56

Logistic regression Number of obs = 26,110

LR chi2(2) = 7345.41

Prob > chi2 = 0.0000

Log likelihood = -11529.56 Pseudo R2 = 0.2416

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

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

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

\_hat | 1.112474 .0199102 55.87 0.000 1.073451 1.151497

\_hatsq | .0757963 .006787 11.17 0.000 .0624941 .0890985

\_cons | -.0564334 .0208942 -2.70 0.007 -.0973853 -.0154816

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

**. estat classification**

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 3074 1214 | 4288

- | 3949 17873 | 21822

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

Total | 7023 19087 | 26110

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

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

Sensitivity Pr( +| D) 43.77%

Specificity Pr( -|~D) 93.64%

Positive predictive value Pr( D| +) 71.69%

Negative predictive value Pr(~D| -) 81.90%

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

False + rate for true ~D Pr( +|~D) 6.36%

False - rate for true D Pr( -| D) 56.23%

False + rate for classified + Pr(~D| +) 28.31%

False - rate for classified - Pr( D| -) 18.10%

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

Correctly classified 80.23%

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

**. summ MR\_indicator pbv2\_yhat**

Variable | Obs Mean Std. Dev. Min Max

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

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

pbv2\_yhat | 26,110 .2689774 .2333465 .0000245 .9891771