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

note: 8.state != 0 predicts failure perfectly

8.state dropped and 1 obs not used

Iteration 0: log pseudolikelihood = -9214.2252

Iteration 1: log pseudolikelihood = -8800.72

Iteration 2: log pseudolikelihood = -8797.3794

Iteration 3: log pseudolikelihood = -8797.3775

Iteration 4: log pseudolikelihood = -8797.3775

Logistic regression Number of obs = 19,290

Wald chi2(85) = .

Log pseudolikelihood = -8797.3775 Prob > chi2 = .

(Std. Err. adjusted for 1,287 clusters in mineid)

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

| Robust

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

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

p47\_c\_lag\_all | 1.024167 .0465943 0.52 0.600 .9367968 1.119685

p48\_c\_lag\_all | 1.006791 .0091043 0.75 0.454 .989104 1.024794

p71\_c\_lag\_all | 1.063263 .0542346 1.20 0.229 .9621062 1.175056

p72\_c\_lag\_all | .9984543 .0244271 -0.06 0.950 .9517076 1.047497

p75\_c\_lag\_all | 1.000175 .0000879 1.99 0.047 1.000002 1.000347

p77\_c\_lag\_all | .9958187 .0040859 -1.02 0.307 .9878426 1.003859

mine\_time | .9966829 .003242 -1.02 0.307 .9903489 1.003057

onsite\_insp\_hours | 1.001096 .0002588 4.24 0.000 1.000589 1.001604

|

state |

AL | 1.983252 .4511487 3.01 0.003 1.269835 3.09748

CO | .9422385 .2715235 -0.21 0.836 .535638 1.657488

IL | 1.58041 .1979676 3.65 0.000 1.236361 2.020199

IN | 1.210708 .2856233 0.81 0.418 .7624811 1.922428

MD | 1.518264 .5175873 1.22 0.221 .7783351 2.961612

MT | 1 (empty)

NM | 1.260606 .1268762 2.30 0.021 1.034924 1.535502

OH | 1.042256 .2624354 0.16 0.869 .6362762 1.707274

OK | 1.121604 .3160145 0.41 0.684 .6456713 1.948352

PA | 1.272286 .1557662 1.97 0.049 1.000857 1.617326

TN | 1.507836 .272127 2.28 0.023 1.058604 2.147706

UT | .6926939 .1140407 -2.23 0.026 .5016548 .9564841

VA | .7232007 .0671799 -3.49 0.000 .6028213 .867619

WV | 1.25235 .0881661 3.20 0.001 1.090939 1.437642

WY | 2.927483 .3862546 8.14 0.000 2.260404 3.791427

|

time |

2000.25 | .9617488 .14763 -0.25 0.799 .7118702 1.299339

2000.5 | 1.404015 .2111207 2.26 0.024 1.045628 1.885238

2000.75 | .8429385 .1312415 -1.10 0.272 .6212521 1.143731

2001 | .9599821 .1511733 -0.26 0.795 .7050502 1.307092

2001.25 | .8695299 .1401086 -0.87 0.386 .6340583 1.192449

2001.5 | 1.049182 .1673132 0.30 0.763 .7675555 1.434142

2001.75 | 1.031521 .1639152 0.20 0.845 .7554689 1.408443

2002 | .9018344 .1449765 -0.64 0.520 .6580971 1.235844

2002.25 | .7110275 .1244925 -1.95 0.051 .5044883 1.002124

2002.5 | .969401 .1632771 -0.18 0.854 .6968428 1.348566

2002.75 | .9239781 .1551983 -0.47 0.638 .6647946 1.284209

2003 | .8979014 .1617769 -0.60 0.550 .6307624 1.278178

2003.25 | .8805262 .1599024 -0.70 0.484 .6168296 1.256954

2003.5 | 1.020392 .1816321 0.11 0.910 .719865 1.446381

2003.75 | .7260188 .1327763 -1.75 0.080 .5073151 1.039006

2004 | .7981739 .1402492 -1.28 0.200 .5656278 1.126326

2004.25 | .7559998 .1283573 -1.65 0.099 .5420016 1.054491

2004.5 | .7120194 .1337638 -1.81 0.071 .4926976 1.028971

2004.75 | .6300872 .1204686 -2.42 0.016 .4331681 .9165262

2005 | .6327961 .1216287 -2.38 0.017 .4341659 .9222992

2005.25 | .7261927 .1366207 -1.70 0.089 .5022419 1.050004

2005.5 | .7633898 .1385469 -1.49 0.137 .5348877 1.089507

2005.75 | .503399 .0974353 -3.55 0.000 .3444754 .7356418

2006 | .8057611 .1493097 -1.17 0.244 .5603719 1.158607

2006.25 | .615807 .115891 -2.58 0.010 .4258473 .890503

2006.5 | .7477809 .1366034 -1.59 0.112 .5227309 1.069721

2006.75 | .5931454 .1127075 -2.75 0.006 .4087132 .8608029

2007 | .5978203 .1080954 -2.85 0.004 .4194303 .8520821

2007.25 | .5145691 .1016365 -3.36 0.001 .3493947 .7578288

2007.5 | .6886141 .1316215 -1.95 0.051 .4734537 1.001554

2007.75 | .7109209 .135357 -1.79 0.073 .489503 1.032493

2008 | .48102 .0907847 -3.88 0.000 .3322865 .6963276

2008.25 | .5104145 .0985263 -3.48 0.000 .3496343 .74513

2008.5 | .5755676 .1117582 -2.84 0.004 .3933854 .8421208

2008.75 | .5210008 .1038758 -3.27 0.001 .3524748 .7701028

2009 | .4352895 .0895507 -4.04 0.000 .2908461 .651468

2009.25 | .4501056 .0903058 -3.98 0.000 .3037636 .6669498

2009.5 | .4756588 .0938501 -3.77 0.000 .3231089 .7002325

2009.75 | .3561879 .0759079 -4.84 0.000 .234573 .5408544

2010 | .3719681 .0792999 -4.64 0.000 .2449277 .5649025

2010.25 | .4197355 .0839007 -4.34 0.000 .2836805 .6210432

2010.5 | .5192306 .1072087 -3.17 0.002 .3464236 .7782392

2010.75 | .4600546 .0929921 -3.84 0.000 .3095663 .6836993

2011 | .5179904 .108746 -3.13 0.002 .343259 .7816665

2011.25 | .4973965 .1021688 -3.40 0.001 .3325522 .7439533

2011.5 | .565091 .1139314 -2.83 0.005 .3806295 .8389466

2011.75 | .3482409 .0789348 -4.65 0.000 .2233266 .5430242

2012 | .4320551 .0884472 -4.10 0.000 .2892594 .6453434

2012.25 | .4044638 .0865987 -4.23 0.000 .2658466 .6153584

2012.5 | .6486981 .1361288 -2.06 0.039 .4299507 .9787383

2012.75 | .3556802 .0803854 -4.57 0.000 .2283937 .5539048

2013 | .3005765 .0658085 -5.49 0.000 .1957005 .4616555

2013.25 | .2635213 .0604032 -5.82 0.000 .1681539 .4129756

2013.5 | .3379187 .0751408 -4.88 0.000 .2185426 .5225025

2013.75 | .4116599 .0980067 -3.73 0.000 .2581589 .6564323

2014 | .2764805 .0650988 -5.46 0.000 .1742787 .438616

2014.25 | .3584545 .085525 -4.30 0.000 .2245653 .5721704

2014.5 | .4015973 .0926136 -3.96 0.000 .2555598 .6310867

2014.75 | .4230344 .0993128 -3.66 0.000 .2670208 .6702028

2015 | .3902571 .098499 -3.73 0.000 .2379643 .6400146

2015.25 | .3248885 .0817387 -4.47 0.000 .1984178 .5319711

2015.5 | .4615198 .1167402 -3.06 0.002 .2811133 .7577037

2015.75 | .2707404 .072216 -4.90 0.000 .1605121 .4566656

2016 | .3927645 .1031951 -3.56 0.000 .234686 .6573205

|

\_cons | .0000177 2.07e-06 -93.41 0.000 .0000141 .0000223

lnhours | 1 (offset)

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

. lfit

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

number of observations = 19290

number of covariate patterns = 19275

Pearson chi2(19188) = 147941.59

Prob > chi2 = 0.0000

. linktest

Iteration 0: log likelihood = -11789.497

Iteration 1: log likelihood = -8806.8459

Iteration 2: log likelihood = -8738.9381

Iteration 3: log likelihood = -8737.5437

Iteration 4: log likelihood = -8737.5408

Iteration 5: log likelihood = -8737.5408

Logistic regression Number of obs = 19,290

LR chi2(2) = 6103.91

Prob > chi2 = 0.0000

Log likelihood = -8737.5408 Pseudo R2 = 0.2589

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

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

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

\_hat | 1.126105 .0207371 54.30 0.000 1.085461 1.166748

\_hatsq | .0889337 .0067394 13.20 0.000 .0757247 .1021428

\_cons | -.0765859 .0227913 -3.36 0.001 -.121256 -.0319157

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

. estat classification

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 2983 1108 | 4091

- | 2811 12388 | 15199

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

Total | 5794 13496 | 19290

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

True D defined as MR\_indicator != 0

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

Sensitivity Pr( +| D) 51.48%

Specificity Pr( -|~D) 91.79%

Positive predictive value Pr( D| +) 72.92%

Negative predictive value Pr(~D| -) 81.51%

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

False + rate for true ~D Pr( +|~D) 8.21%

False - rate for true D Pr( -| D) 48.52%

False + rate for classified + Pr(~D| +) 27.08%

False - rate for classified - Pr( D| -) 18.49%

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

Correctly classified 79.68%

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

. summ MR\_indicator pbv4\_yhat

Variable | Obs Mean Std. Dev. Min Max

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

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

pbv4\_yhat | 19,290 .3003629 .2501607 .000024 .9825747