**. logit MR\_indicator `part\_sigandsub\_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 = -8800.3343

Iteration 2: log pseudolikelihood = -8797.1792

Iteration 3: log pseudolikelihood = -8797.1773

Iteration 4: log pseudolikelihood = -8797.1773

Logistic regression Number of obs = 19,290

Wald chi2(85) = .

Log pseudolikelihood = -8797.1773 Prob > chi2 = .

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

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| Robust

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

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

p47\_ss\_c\_lag\_all | 1.001604 .2832772 0.01 0.995 .5753815 1.743556

p48\_ss\_c\_lag\_all | 1.033662 .0318665 1.07 0.283 .9730548 1.098045

p71\_ss\_c\_lag\_all | 1.059704 .1737042 0.35 0.724 .7685242 1.461206

p72\_ss\_c\_lag\_all | .9298301 .0666272 -1.02 0.310 .8079986 1.070032

p75\_ss\_c\_lag\_all | 1.000175 .0003279 0.53 0.593 .9995328 1.000818

p77\_ss\_c\_lag\_all | 1.013028 .0136245 0.96 0.336 .9866732 1.040087

mine\_time | .9975361 .0035325 -0.70 0.486 .9906365 1.004484

onsite\_insp\_hours | 1.001059 .0002527 4.19 0.000 1.000564 1.001554

|

state |

AL | 1.882331 .4304152 2.77 0.006 1.202429 2.946676

CO | .8461987 .196647 -0.72 0.472 .5366149 1.334388

IL | 1.571813 .1980405 3.59 0.000 1.227874 2.012092

IN | 1.186295 .2794269 0.73 0.468 .7476451 1.882304

MD | 1.498229 .4990281 1.21 0.225 .7799396 2.878029

MT | 1 (empty)

NM | 1.371588 .1196144 3.62 0.000 1.15609 1.627256

OH | .9948169 .2330248 -0.02 0.982 .6285772 1.574446

OK | 1.030859 .2748132 0.11 0.909 .6113368 1.738274

PA | 1.258479 .152294 1.90 0.057 .9927461 1.595341

TN | 1.499591 .2687727 2.26 0.024 1.055386 2.130759

UT | .7176655 .1381152 -1.72 0.085 .4921617 1.046493

VA | .7041757 .0685036 -3.61 0.000 .5819351 .8520941

WV | 1.229127 .0877541 2.89 0.004 1.068624 1.413737

WY | 2.580599 .3297775 7.42 0.000 2.008837 3.315099

|

time |

2000.25 | .9614778 .1474019 -0.26 0.798 .7119403 1.298479

2000.5 | 1.400226 .2102881 2.24 0.025 1.043189 1.879459

2000.75 | .8388882 .1304589 -1.13 0.259 .6184866 1.137831

2001 | .9536995 .150059 -0.30 0.763 .700616 1.298204

2001.25 | .8633691 .1390252 -0.91 0.362 .6296956 1.183757

2001.5 | 1.040577 .1657859 0.25 0.803 .7614827 1.421965

2001.75 | 1.021214 .1621879 0.13 0.895 .748049 1.394131

2002 | .8922141 .1434412 -0.71 0.478 .6510606 1.222691

2002.25 | .7022263 .1232823 -2.01 0.044 .4977839 .9906342

2002.5 | .9559681 .1615395 -0.27 0.790 .6864476 1.331311

2002.75 | .9109856 .1526312 -0.56 0.578 .6559895 1.265104

2003 | .8843255 .1594685 -0.68 0.495 .621036 1.259237

2003.25 | .8661659 .1569794 -0.79 0.428 .6072027 1.235573

2003.5 | 1.002889 .1795032 0.02 0.987 .7061547 1.424316

2003.75 | .7114515 .130754 -1.85 0.064 .4962577 1.01996

2004 | .7824422 .1373308 -1.40 0.162 .5546936 1.103701

2004.25 | .7409293 .127012 -1.75 0.080 .5294947 1.036793

2004.5 | .6976157 .1306562 -1.92 0.055 .4832758 1.007019

2004.75 | .616896 .1182882 -2.52 0.012 .4236393 .898313

2005 | .6196142 .1191421 -2.49 0.013 .4250584 .9032211

2005.25 | .712202 .1337291 -1.81 0.071 .4929176 1.029039

2005.5 | .7493457 .1360446 -1.59 0.112 .5249834 1.069594

2005.75 | .493208 .09502 -3.67 0.000 .3380961 .7194824

2006 | .7914209 .146529 -1.26 0.206 .5505672 1.13764

2006.25 | .6048115 .1136396 -2.68 0.007 .4184905 .8740866

2006.5 | .734444 .1349197 -1.68 0.093 .5123778 1.052754

2006.75 | .5815487 .1103311 -2.86 0.004 .4009559 .8434815

2007 | .5852651 .1059856 -2.96 0.003 .4104012 .8346352

2007.25 | .5027353 .0994651 -3.48 0.001 .3411387 .7408798

2007.5 | .6707645 .1281203 -2.09 0.037 .4613018 .9753376

2007.75 | .6934113 .1311182 -1.94 0.053 .4786697 1.004491

2008 | .4692134 .0897414 -3.96 0.000 .3225301 .6826066

2008.25 | .4986332 .0960683 -3.61 0.000 .341811 .7274053

2008.5 | .5625284 .109552 -2.95 0.003 .3840375 .8239774

2008.75 | .5099315 .1019361 -3.37 0.001 .3446318 .754516

2009 | .4268699 .0874655 -4.15 0.000 .2856832 .6378322

2009.25 | .4418546 .0883555 -4.08 0.000 .2985856 .6538679

2009.5 | .4677919 .0922581 -3.85 0.000 .3178179 .6885367

2009.75 | .351559 .074604 -4.93 0.000 .2319346 .5328819

2010 | .3672368 .0781865 -4.71 0.000 .2419476 .5574052

2010.25 | .4150526 .0838771 -4.35 0.000 .2793094 .6167665

2010.5 | .5131668 .1052828 -3.25 0.001 .3432603 .7671734

2010.75 | .4541131 .0925216 -3.87 0.000 .3046064 .6770006

2011 | .5115636 .1074015 -3.19 0.001 .338994 .7719821

2011.25 | .4915654 .0997485 -3.50 0.000 .3302595 .7316566

2011.5 | .557454 .1122795 -2.90 0.004 .3756335 .8272822

2011.75 | .3438228 .0786395 -4.67 0.000 .2196074 .5382976

2012 | .4272193 .087413 -4.16 0.000 .2860798 .6379911

2012.25 | .4014096 .085818 -4.27 0.000 .2640025 .6103339

2012.5 | .6444883 .1358147 -2.08 0.037 .4264216 .9740717

2012.75 | .3542477 .0808358 -4.55 0.000 .2265016 .5540421

2013 | .2996855 .066201 -5.46 0.000 .1943722 .462059

2013.25 | .2620407 .0603999 -5.81 0.000 .1667893 .411689

2013.5 | .3365674 .0753112 -4.87 0.000 .2170725 .5218422

2013.75 | .4089895 .0978768 -3.74 0.000 .2558633 .6537569

2014 | .2757281 .0649148 -5.47 0.000 .173813 .437401

2014.25 | .3572077 .0850706 -4.32 0.000 .223977 .5696896

2014.5 | .4020155 .0932611 -3.93 0.000 .2551395 .6334435

2014.75 | .4256804 .1004425 -3.62 0.000 .2680626 .6759757

2015 | .392317 .0998551 -3.68 0.000 .238223 .6460863

2015.25 | .32757 .0828132 -4.41 0.000 .1995773 .5376467

2015.5 | .465777 .1174929 -3.03 0.002 .2840935 .7636506

2015.75 | .2737865 .0730419 -4.86 0.000 .1623024 .4618479

2016 | .3961383 .1038173 -3.53 0.000 .2370116 .6621008

|

\_cons | .000018 2.10e-06 -93.41 0.000 .0000143 .0000226

lnhours | 1 (offset)

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

**. lfit**

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

number of observations = 19290

number of covariate patterns = 19269

Pearson chi2(19182) = 148063.04

Prob > chi2 = 0.0000

**. linktest**

Iteration 0: log likelihood = -11789.497

Iteration 1: log likelihood = -8810.6229

Iteration 2: log likelihood = -8742.357

Iteration 3: log likelihood = -8740.8406

Iteration 4: log likelihood = -8740.8368

Iteration 5: log likelihood = -8740.8368

Logistic regression Number of obs = 19,290

LR chi2(2) = 6097.32

Prob > chi2 = 0.0000

Log likelihood = -8740.8368 Pseudo R2 = 0.2586

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

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

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

\_hat | 1.120343 .020701 54.12 0.000 1.07977 1.160916

\_hatsq | .086832 .0068521 12.67 0.000 .0734021 .1002619

\_cons | -.077018 .0228109 -3.38 0.001 -.1217267 -.0323094

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

**. estat classification**

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 2986 1110 | 4096

- | 2808 12386 | 15194

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

Total | 5794 13496 | 19290

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

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

Sensitivity Pr( +| D) 51.54%

Specificity Pr( -|~D) 91.78%

Positive predictive value Pr( D| +) 72.90%

Negative predictive value Pr(~D| -) 81.52%

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

False + rate for true ~D Pr( +|~D) 8.22%

False - rate for true D Pr( -| D) 48.46%

False + rate for classified + Pr(~D| +) 27.10%

False - rate for classified - Pr( D| -) 18.48%

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

Correctly classified 79.69%

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

**. summ MR\_indicator pbssv4\_yhat**

Variable | Obs Mean Std. Dev. Min Max

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

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

pbssv4\_yhat | 19,290 .3003629 .2504189 .0000238 .9816498