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

Iteration 0: log pseudolikelihood = -12887.233

Iteration 1: log pseudolikelihood = -12182.786

Iteration 2: log pseudolikelihood = -12176.529

Iteration 3: log pseudolikelihood = -12176.522

Iteration 4: log pseudolikelihood = -12176.522

Logistic regression Number of obs = 28,337

Wald chi2(85) = .

Log pseudolikelihood = -12176.522 Prob > chi2 = .

(Std. Err. adjusted for 1,544 clusters in mineid)

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| Robust

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

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

p47\_ss | .9448941 .6283814 -0.09 0.932 .2566315 3.479016

p48\_ss | 1.029187 .0885633 0.33 0.738 .8694544 1.218264

p71\_ss | .3001394 .1216776 -2.97 0.003 .1355948 .6643595

p72\_ss | .9340668 .2444425 -0.26 0.794 .5592694 1.560037

p75\_ss | 1.018429 .0036931 5.04 0.000 1.011217 1.025693

p77\_ss | 1.116756 .0679622 1.81 0.070 .9911898 1.258229

mine\_time | .9985446 .0021326 -0.68 0.495 .9943735 1.002733

onsite\_insp\_hours | 1.000881 .0002694 3.27 0.001 1.000353 1.001409

|

state |

AL | 1.966862 .4214832 3.16 0.002 1.292314 2.993503

AR | 2.135916 .1385454 11.70 0.000 1.880924 2.425476

CO | .8788227 .1645037 -0.69 0.490 .6089307 1.268337

IL | 1.681153 .2208437 3.95 0.000 1.29954 2.174827

IN | 1.122814 .2349443 0.55 0.580 .7450707 1.69207

MD | 1.147233 .2983508 0.53 0.597 .6891078 1.909924

MT | .7304322 .0451238 -5.08 0.000 .6471358 .8244502

NM | 1.386841 .0779825 5.82 0.000 1.242119 1.548424

OH | .9903077 .2416163 -0.04 0.968 .6138936 1.597523

OK | 1.014657 .2832449 0.05 0.958 .5870882 1.753618

PA | 1.290563 .132285 2.49 0.013 1.055674 1.577716

TN | 1.591963 .2427071 3.05 0.002 1.180758 2.146373

UT | .6454902 .1358472 -2.08 0.038 .4273161 .9750571

VA | .7412897 .0598936 -3.71 0.000 .6327234 .8684844

WV | 1.234204 .0717138 3.62 0.000 1.101356 1.383076

WY | 3.001789 .2290977 14.40 0.000 2.584736 3.486135

|

time |

2000 | 1.198464 .191344 1.13 0.257 .8764435 1.638799

2000.25 | 1.133034 .1779709 0.80 0.427 .8327998 1.541505

2000.5 | 1.635115 .2565721 3.13 0.002 1.202218 2.223892

2000.75 | .9618722 .1569355 -0.24 0.812 .698616 1.32433

2001 | 1.059815 .1667344 0.37 0.712 .7786025 1.442596

2001.5 | 1.302109 .2123461 1.62 0.105 .9458771 1.792504

2001.75 | 1.179353 .1865034 1.04 0.297 .8650364 1.607878

2002 | 1.054039 .177377 0.31 0.754 .7579033 1.465884

2002.25 | .8558596 .1416958 -0.94 0.347 .6186969 1.183933

2002.5 | 1.18563 .1949134 1.04 0.300 .8590429 1.636379

2002.75 | 1.142331 .1937003 0.78 0.433 .819327 1.592673

2003 | .9862836 .1714746 -0.08 0.937 .7014755 1.386728

2003.25 | .9577217 .1714898 -0.24 0.809 .6742533 1.360365

2003.5 | 1.228567 .2095122 1.21 0.227 .8795086 1.716159

2003.75 | .8247242 .1425401 -1.11 0.265 .5877497 1.157244

2004 | .9493802 .1624711 -0.30 0.761 .6788452 1.327729

2004.25 | .9407005 .1521486 -0.38 0.705 .6851384 1.291589

2004.5 | .8381284 .1500041 -0.99 0.324 .5901558 1.190294

2004.75 | .7528916 .1335972 -1.60 0.110 .5317294 1.066042

2005 | .701053 .1217648 -2.04 0.041 .4987777 .9853595

2005.25 | .9190058 .1532439 -0.51 0.612 .6627973 1.274253

2005.5 | .8098208 .1349652 -1.27 0.206 .5841538 1.122666

2005.75 | .6395224 .1104406 -2.59 0.010 .4558897 .8971225

2006 | .9254313 .153699 -0.47 0.641 .6683033 1.281489

2006.25 | .7294193 .1208025 -1.91 0.057 .5272369 1.009134

2006.5 | .8223955 .1386205 -1.16 0.246 .5910235 1.144344

2006.75 | .7559949 .1358807 -1.56 0.120 .5315278 1.075256

2007 | .7016278 .1202215 -2.07 0.039 .5014831 .9816514

2007.25 | .6387774 .1105329 -2.59 0.010 .45505 .8966851

2007.5 | .8062219 .1397766 -1.24 0.214 .5739575 1.132477

2007.75 | .770227 .1345517 -1.49 0.135 .5469171 1.084716

2008 | .5979715 .104795 -2.93 0.003 .4241376 .8430519

2008.25 | .6653293 .1149605 -2.36 0.018 .4741981 .9334981

2008.5 | .6559241 .1125129 -2.46 0.014 .4686451 .9180432

2008.75 | .5065385 .0909406 -3.79 0.000 .3562816 .7201644

2009 | .5127568 .091039 -3.76 0.000 .3620614 .7261739

2009.25 | .4861345 .0842353 -4.16 0.000 .3461496 .68273

2009.5 | .5649967 .09862 -3.27 0.001 .4012999 .7954683

2009.75 | .4413957 .0805247 -4.48 0.000 .3087036 .6311237

2010 | .4750255 .0902206 -3.92 0.000 .3273784 .6892612

2010.25 | .4944842 .0884501 -3.94 0.000 .3482531 .7021176

2010.5 | .606821 .1101012 -2.75 0.006 .4252253 .8659685

2010.75 | .4694963 .0855979 -4.15 0.000 .3284296 .6711539

2011 | .598742 .1093999 -2.81 0.005 .4185153 .8565802

2011.25 | .6159602 .1097285 -2.72 0.007 .4344279 .8733485

2011.5 | .6889651 .1212712 -2.12 0.034 .4879432 .9728037

2011.75 | .4611755 .0856515 -4.17 0.000 .3204627 .6636742

2012 | .6303488 .1134701 -2.56 0.010 .44295 .8970303

2012.25 | .5797007 .1067166 -2.96 0.003 .4041168 .8315737

2012.5 | .6774718 .1262315 -2.09 0.037 .4702071 .9760977

2012.75 | .435667 .08447 -4.29 0.000 .2979327 .6370759

2013 | .4384699 .0830593 -4.35 0.000 .3024801 .6355984

2013.25 | .376324 .0738913 -4.98 0.000 .2561111 .5529622

2013.5 | .4634097 .0919841 -3.87 0.000 .3140556 .6837913

2013.75 | .5006786 .1024347 -3.38 0.001 .3352821 .7476663

2014 | .3175999 .065777 -5.54 0.000 .2116367 .4766171

2014.25 | .4123662 .0848313 -4.31 0.000 .275534 .6171502

2014.5 | .4622339 .0920474 -3.88 0.000 .3128649 .6829149

2014.75 | .4764077 .0963466 -3.67 0.000 .3205056 .7081447

2015 | .4675765 .1012656 -3.51 0.000 .3058463 .7148289

2015.25 | .4452434 .0962582 -3.74 0.000 .2914568 .6801752

2015.5 | .6429447 .1371141 -2.07 0.038 .4232985 .9765635

2015.75 | .3110839 .0710672 -5.11 0.000 .1988018 .4867821

2016 | .4870065 .1127891 -3.11 0.002 .3093137 .7667791

|

\_cons | .0000141 1.73e-06 -91.12 0.000 .0000111 .0000179

lnhours | 1 (offset)

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

**. lfit**

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

number of observations = 28337

number of covariate patterns = 28259

Pearson chi2(28170) = 205475.27

Prob > chi2 = 0.0000

**. linktest**

Iteration 0: log likelihood = -16143.173

Iteration 1: log likelihood = -12275.511

Iteration 2: log likelihood = -12130.274

Iteration 3: log likelihood = -12122.826

Iteration 4: log likelihood = -12122.693

Iteration 5: log likelihood = -12122.693

Logistic regression Number of obs = 28,337

LR chi2(2) = 8040.96

Prob > chi2 = 0.0000

Log likelihood = -12122.693 Pseudo R2 = 0.2491

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

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

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

\_hat | 1.124221 .0196651 57.17 0.000 1.085678 1.162763

\_hatsq | .0738545 .0064322 11.48 0.000 .0612477 .0864613

\_cons | -.0448508 .0206002 -2.18 0.029 -.0852265 -.004475

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

**. estat classification**

Logistic model for MR\_indicator

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

Classified | D ~D | Total

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

+ | 3132 1234 | 4366

- | 4145 19826 | 23971

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

Total | 7277 21060 | 28337

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

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

Sensitivity Pr( +| D) 43.04%

Specificity Pr( -|~D) 94.14%

Positive predictive value Pr( D| +) 71.74%

Negative predictive value Pr(~D| -) 82.71%

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

False + rate for true ~D Pr( +|~D) 5.86%

False - rate for true D Pr( -| D) 56.96%

False + rate for classified + Pr(~D| +) 28.26%

False - rate for classified - Pr( D| -) 17.29%

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

Correctly classified 81.02%

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**. summ MR\_indicator pbssv1\_yhat**

Variable | Obs Mean Std. Dev. Min Max

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

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

pbssv1\_yhat | 28,337 .2568021 .2310095 .0000206 .9881859