. // Model B.PP.4

.

. eststo clear

. eststo: logit dv\_indicator `pp\_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 = -9648.0546

Iteration 1: log pseudolikelihood = -9158.854

Iteration 2: log pseudolikelihood = -9127.0542

Iteration 3: log pseudolikelihood = -9126.7361

Iteration 4: log pseudolikelihood = -9126.7361

Logistic regression Number of obs = 19,290

Wald chi2(81) = .

Log pseudolikelihood = -9126.7361 Prob > chi2 = .

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

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

| Robust

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

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

p48\_pp\_c\_lag\_all | 1.000596 .0003608 1.65 0.099 .9998889 1.001303

p75\_pp\_c\_lag\_all | 1.000002 2.21e-06 1.02 0.308 .9999979 1.000007

mine\_time | 1.0032 .0034081 0.94 0.347 .9965423 1.009902

onsite\_insp\_hours | 1.004055 .0004704 8.64 0.000 1.003133 1.004977

|

state |

AL | 1.155905 .4230163 0.40 0.692 .5641768 2.368257

CO | 1.514181 .2620302 2.40 0.017 1.078641 2.125587

IL | 4.95138 1.474794 5.37 0.000 2.761795 8.876895

IN | 1.855674 .6289518 1.82 0.068 .9549929 3.605813

MD | 2.099709 .646375 2.41 0.016 1.148484 3.83878

MT | 1 (empty)

NM | 2.085909 .1436766 10.67 0.000 1.822489 2.387403

OH | 1.308966 .2780822 1.27 0.205 .863168 1.985002

OK | 3.712443 1.403804 3.47 0.001 1.769257 7.789844

PA | 1.760262 .2186229 4.55 0.000 1.379936 2.245411

TN | 1.71856 .3602122 2.58 0.010 1.139599 2.591657

UT | .4336909 .1231981 -2.94 0.003 .2485309 .7567984

VA | 1.116847 .0969612 1.27 0.203 .9420957 1.324014

WV | 1.704461 .1396802 6.51 0.000 1.451548 2.001442

WY | 2.450759 .6265436 3.51 0.000 1.48487 4.044946

|

time |

2000.25 | 1.473574 .1961391 2.91 0.004 1.135203 1.912805

2000.5 | 1.562394 .222267 3.14 0.002 1.18222 2.064824

2000.75 | .7740761 .1035142 -1.91 0.055 .5956015 1.006031

2001 | .9614237 .1340664 -0.28 0.778 .731507 1.263605

2001.25 | .9594945 .1336472 -0.30 0.767 .730263 1.260682

2001.5 | 1.207677 .1841863 1.24 0.216 .8956363 1.628434

2001.75 | .9606559 .1445735 -0.27 0.790 .7152645 1.290236

2002 | 1.059554 .1579571 0.39 0.698 .7910914 1.41912

2002.25 | .8778095 .1356085 -0.84 0.399 .6484886 1.188224

2002.5 | 1.261508 .2060275 1.42 0.155 .9159532 1.737429

2002.75 | .7914996 .1249181 -1.48 0.138 .5809117 1.078428

2003 | .9154941 .1618513 -0.50 0.617 .6473969 1.294614

2003.25 | .9371818 .1627307 -0.37 0.709 .6668415 1.317119

2003.5 | 1.400559 .2377811 1.98 0.047 1.004125 1.953506

2003.75 | .7327372 .1269509 -1.79 0.073 .5217623 1.02902

2004 | .7561191 .1254552 -1.68 0.092 .5462091 1.046698

2004.25 | .6967389 .1151297 -2.19 0.029 .5039841 .963215

2004.5 | .7272115 .123323 -1.88 0.060 .5215682 1.013936

2004.75 | .5776141 .0957184 -3.31 0.001 .4174286 .7992696

2005 | .7037323 .1206693 -2.05 0.040 .5028652 .984835

2005.25 | .6106951 .1022231 -2.95 0.003 .4398893 .8478235

2005.5 | .7131306 .1255631 -1.92 0.055 .5050046 1.007031

2005.75 | .5307185 .0923962 -3.64 0.000 .377288 .746544

2006 | .6617093 .1224748 -2.23 0.026 .4603833 .9510754

2006.25 | .5491247 .0930743 -3.54 0.000 .393909 .7655015

2006.5 | .6684186 .1168346 -2.30 0.021 .4745312 .9415259

2006.75 | .5621709 .1014029 -3.19 0.001 .3947579 .8005821

2007 | .5254958 .092699 -3.65 0.000 .3718903 .7425465

2007.25 | .4519526 .0804498 -4.46 0.000 .3188415 .6406354

2007.5 | .5749485 .10306 -3.09 0.002 .4046228 .8169726

2007.75 | .4573126 .0795814 -4.50 0.000 .3251527 .6431896

2008 | .4447321 .080478 -4.48 0.000 .3119367 .6340604

2008.25 | .4514271 .0846428 -4.24 0.000 .3125985 .6519112

2008.5 | .425568 .0755703 -4.81 0.000 .3004807 .6027279

2008.75 | .4338523 .0762937 -4.75 0.000 .3073666 .6123888

2009 | .4945132 .0897441 -3.88 0.000 .3464992 .7057546

2009.25 | .5028043 .0984178 -3.51 0.000 .3425995 .7379234

2009.5 | .3925757 .0773085 -4.75 0.000 .2668697 .577494

2009.75 | .4296922 .0810531 -4.48 0.000 .2968896 .6218993

2010 | .4105578 .0846092 -4.32 0.000 .2741295 .6148837

2010.25 | .427466 .08376 -4.34 0.000 .2911472 .627611

2010.5 | .6004907 .1245079 -2.46 0.014 .3999587 .9015658

2010.75 | .3611519 .0748607 -4.91 0.000 .2405748 .5421628

2011 | .4129204 .0850018 -4.30 0.000 .2758304 .6181453

2011.25 | .3891577 .0796649 -4.61 0.000 .2605406 .5812674

2011.5 | .5169732 .101873 -3.35 0.001 .3513445 .7606816

2011.75 | .4151142 .0855987 -4.26 0.000 .2771056 .621856

2012 | .325209 .0652065 -5.60 0.000 .2195286 .4817637

2012.25 | .4430549 .0929107 -3.88 0.000 .2937356 .6682802

2012.5 | .4003725 .0876218 -4.18 0.000 .2607223 .6148234

2012.75 | .1639332 .036892 -8.04 0.000 .1054654 .2548143

2013 | .3422668 .0798597 -4.60 0.000 .2166494 .5407195

2013.25 | .3337361 .0790125 -4.64 0.000 .209836 .5307944

2013.5 | .2647533 .0643187 -5.47 0.000 .1644569 .4262171

2013.75 | .2138686 .0525404 -6.28 0.000 .1321403 .3461456

2014 | .2734478 .0716484 -4.95 0.000 .1636228 .4569883

2014.25 | .2276266 .0578344 -5.83 0.000 .1383418 .3745353

2014.5 | .2527355 .0639061 -5.44 0.000 .1539691 .4148575

2014.75 | .368688 .0992977 -3.70 0.000 .217474 .6250441

2015 | .2614704 .0652892 -5.37 0.000 .1602793 .4265476

2015.25 | .1567128 .0398784 -7.28 0.000 .0951702 .2580524

2015.5 | .2969158 .0789813 -4.56 0.000 .1762823 .5001012

2015.75 | .178058 .0483575 -6.35 0.000 .1045658 .303203

2016 | .106341 .0347706 -6.85 0.000 .0560248 .2018462

|

\_cons | .0000754 8.34e-06 -85.87 0.000 .0000607 .0000937

lnhours | 1 (offset)

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

(est1 stored)

. esttab using `"`directory'Model.`injury\_label'.`time\_label'.`violation\_level\_label'.B.PP.4.csv"', replace plain wide p eform

(note: file C:\Users\jbodson\Dropbox (Stanford Law School)\R-code\Injury-Classification\PS Model Summaries 10-10\Estout\Model.PS.Q.P.B.PP.4.csv not found)

(output written to C:\Users\jbodson\Dropbox (Stanford Law School)\R-code\Injury-Classification\PS Model Summaries 10-10\Estout\Model.PS.Q.P.B.PP.4.csv)

.

. pause "next"

.

. // diagnostics/assessment

. lfit

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

number of observations = 19290

number of covariate patterns = 19282

Pearson chi2(19199) = 70968.71

Prob > chi2 = 0.0000

.

. pause "next"

.

. linktest

Iteration 0: log likelihood = -12685.832

Iteration 1: log likelihood = -9389.6736

Iteration 2: log likelihood = -8977.9135

Iteration 3: log likelihood = -8874.5836

Iteration 4: log likelihood = -8873.5109

Iteration 5: log likelihood = -8873.5104

Logistic regression Number of obs = 19,290

LR chi2(2) = 7624.64

Prob > chi2 = 0.0000

Log likelihood = -8873.5104 Pseudo R2 = 0.3005

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

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

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

\_hat | .9696984 .0167242 57.98 0.000 .9369196 1.002477

\_hatsq | .1363829 .0052583 25.94 0.000 .1260768 .1466889

\_cons | -.1698383 .0201955 -8.41 0.000 -.2094208 -.1302558

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

Note: 0 failures and 30 successes completely determined.

.

. pause "next"

.

. estat classification

Logistic model for dv\_indicator

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

Classified | D ~D | Total

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

+ | 10480 2621 | 13101

- | 1720 4469 | 6189

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

Total | 12200 7090 | 19290

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

True D defined as dv\_indicator != 0

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

Sensitivity Pr( +| D) 85.90%

Specificity Pr( -|~D) 63.03%

Positive predictive value Pr( D| +) 79.99%

Negative predictive value Pr(~D| -) 72.21%

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

False + rate for true ~D Pr( +|~D) 36.97%

False - rate for true D Pr( -| D) 14.10%

False + rate for classified + Pr(~D| +) 20.01%

False - rate for classified - Pr( D| -) 27.79%

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

Correctly classified 77.50%

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

.

. pause "next"

.

. predict bpp4\_yhat

(option pr assumed; Pr(dv\_indicator))

(10999 missing values generated)

. gen bpp4\_res = dv\_indicator - bpp4\_yhat

(10,999 missing values generated)

.

. summ dv\_indicator bpp4\_yhat

Variable | Obs Mean Std. Dev. Min Max

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

dv\_indicator | 30,289 .5522797 .4972675 0 1

bpp4\_yhat | 19,290 .632452 .2778939 .000166 .9999878

. /\*

> pause "next"

>

> scatter dv\_indicator bpp4\_yhat

>

> pause "next"

>

> scatter bpp4\_res dv\_indicator

>

> pause "next"

>

> scatter bpp4\_res bpp4\_yhat

> \*/

. pause "complete: B.PP.4"