. // Model B.SSV.3

.

. eststo clear

. eststo: logit dv\_indicator `ss\_lag\_4\_vars' `covariates' ib(freq).state ib(freq).time, vce(cl mineid) offset(lnhours) iter(50) or

Iteration 0: log pseudolikelihood = -11232.754

Iteration 1: log pseudolikelihood = -10640.614

Iteration 2: log pseudolikelihood = -10600.34

Iteration 3: log pseudolikelihood = -10600.041

Iteration 4: log pseudolikelihood = -10600.041

Logistic regression Number of obs = 22,446

Wald chi2(78) = .

Log pseudolikelihood = -10600.041 Prob > chi2 = .

(Std. Err. adjusted for 1,293 clusters in mineid)

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

| Robust

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

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

p48\_ss\_c\_4lag | 1.112251 .0792005 1.49 0.135 .9673666 1.278836

p75\_ss\_c\_4lag | 1.01168 .0016167 7.27 0.000 1.008516 1.014853

mine\_time | 1.000785 .002597 0.30 0.762 .9957081 1.005888

onsite\_insp\_hours | 1.002965 .0004671 6.36 0.000 1.00205 1.003881

|

state |

AL | 1.147203 .4298953 0.37 0.714 .5503847 2.391189

AR | 1.996874 .1562285 8.84 0.000 1.712994 2.327801

CO | 1.809145 .3395005 3.16 0.002 1.252387 2.613414

IL | 4.138677 1.189792 4.94 0.000 2.355902 7.270528

IN | 1.574527 .3109173 2.30 0.022 1.069217 2.318646

MD | 1.868944 .4975626 2.35 0.019 1.109134 3.149262

MT | .700972 .0527342 -4.72 0.000 .6048736 .8123378

NM | 4.083137 .2747035 20.91 0.000 3.578716 4.658657

OH | 1.412889 .3247757 1.50 0.133 .9004204 2.217025

OK | 3.361465 1.448902 2.81 0.005 1.444218 7.82392

PA | 1.916802 .2239466 5.57 0.000 1.524504 2.41005

TN | 2.049412 .5353236 2.75 0.006 1.228254 3.41956

UT | .5062218 .1600408 -2.15 0.031 .2724179 .9406891

VA | 1.054649 .0831353 0.67 0.500 .9036696 1.230852

WV | 1.751314 .1337363 7.34 0.000 1.507868 2.034064

WY | 5.900402 .4118836 25.43 0.000 5.145915 6.765511

|

time |

2000.75 | 1.765223 .3052384 3.29 0.001 1.257801 2.477351

2001 | 2.138773 .3809269 4.27 0.000 1.508555 3.032273

2001.25 | 2.20435 .3727145 4.67 0.000 1.582553 3.070456

2001.5 | 2.559644 .4362015 5.52 0.000 1.83283 3.574679

2001.75 | 2.081863 .3540259 4.31 0.000 1.491775 2.905368

2002 | 2.242518 .3811726 4.75 0.000 1.607136 3.129098

2002.25 | 1.952398 .3303665 3.95 0.000 1.401316 2.7202

2002.5 | 2.736262 .4632085 5.95 0.000 1.963641 3.812883

2002.75 | 1.877929 .3201612 3.70 0.000 1.3445 2.622995

2003 | 2.021616 .3618736 3.93 0.000 1.423416 2.871214

2003.25 | 2.173319 .3932729 4.29 0.000 1.524384 3.098508

2003.5 | 3.33646 .6168225 6.52 0.000 2.322316 4.793474

2003.75 | 1.717537 .3006158 3.09 0.002 1.218772 2.420413

2004 | 1.794375 .3096199 3.39 0.001 1.279494 2.51645

2004.25 | 1.592651 .2749656 2.70 0.007 1.135439 2.233971

2004.5 | 1.832028 .3092902 3.59 0.000 1.315918 2.550559

2004.75 | 1.421228 .2323515 2.15 0.032 1.031582 1.958049

2005 | 1.508299 .257622 2.41 0.016 1.079194 2.108022

2005.25 | 1.549118 .2595569 2.61 0.009 1.115487 2.151318

2005.5 | 1.717524 .2889272 3.22 0.001 1.235125 2.388331

2005.75 | 1.225848 .2023918 1.23 0.217 .8869528 1.694233

2006 | 1.522711 .250468 2.56 0.011 1.103074 2.101987

2006.25 | 1.365793 .2275495 1.87 0.061 .9853027 1.893217

2006.5 | 1.636202 .2639543 3.05 0.002 1.192669 2.244677

2006.75 | 1.301459 .2220682 1.54 0.123 .9315146 1.818323

2007 | 1.081205 .1710187 0.49 0.622 .7929945 1.474166

2007.25 | 1.109366 .1745385 0.66 0.509 .8149932 1.510066

2007.5 | 1.410312 .2243451 2.16 0.031 1.032548 1.926282

2007.75 | 1.168982 .1845099 0.99 0.323 .8579381 1.592795

2008 | 1.107391 .1856305 0.61 0.543 .7972882 1.538108

2008.25 | 1.107571 .177771 0.64 0.524 .8086286 1.517029

2008.5 | 1.065762 .1619037 0.42 0.675 .7913185 1.435388

2009 | 1.027857 .1735636 0.16 0.871 .738243 1.431088

2009.25 | .99771 .1684637 -0.01 0.989 .716603 1.389089

2009.5 | 1.083805 .1811822 0.48 0.630 .7810048 1.504002

2009.75 | .839969 .1420993 -1.03 0.303 .6029256 1.170207

2010 | 1.032536 .1868939 0.18 0.860 .7241587 1.472234

2010.25 | .912081 .1536565 -0.55 0.585 .6555912 1.268918

2010.5 | 1.239676 .2211048 1.20 0.228 .8739575 1.758433

2010.75 | .7408408 .1363444 -1.63 0.103 .5164993 1.062625

2011 | .8105968 .1343995 -1.27 0.205 .585697 1.121855

2011.25 | .9702025 .1706804 -0.17 0.863 .6872534 1.369645

2011.5 | 1.297105 .2305133 1.46 0.143 .9155985 1.837576

2011.75 | .8086296 .1421715 -1.21 0.227 .5729189 1.141316

2012 | .9003591 .1525733 -0.62 0.536 .6459108 1.255044

2012.25 | 1.00666 .1750825 0.04 0.970 .7158768 1.415557

2012.5 | .9773252 .1782057 -0.13 0.900 .6836453 1.397164

2012.75 | .5017962 .0900826 -3.84 0.000 .352955 .7134036

2013 | .8246901 .1500889 -1.06 0.290 .5772674 1.178161

2013.25 | .8307759 .1585299 -0.97 0.331 .5715527 1.207568

2013.5 | .8677622 .166342 -0.74 0.459 .5959821 1.26348

2013.75 | .5526042 .106541 -3.08 0.002 .3787078 .8063511

2014 | .6559266 .1355364 -2.04 0.041 .4374904 .9834268

2014.25 | .656836 .1280798 -2.16 0.031 .4482051 .9625805

2014.5 | .7279272 .1530039 -1.51 0.131 .4821397 1.099014

2014.75 | .8448101 .1755302 -0.81 0.417 .5622131 1.269455

2015 | .6550996 .1324614 -2.09 0.036 .4407518 .9736897

2015.25 | .5122906 .106483 -3.22 0.001 .3408698 .7699176

2015.5 | .9475328 .2001017 -0.26 0.799 .6263772 1.433351

2015.75 | .5889425 .1256691 -2.48 0.013 .3876526 .8947527

2016 | .3867186 .0927009 -3.96 0.000 .2417422 .6186397

|

\_cons | .0000299 4.17e-06 -74.54 0.000 .0000227 .0000393

lnhours | 1 (offset)

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

(est1 stored)

. esttab using `"`directory'Model.`injury\_label'.`time\_label'.`violation\_level\_label'.B.SSV.3.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.SSV.3.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.SSV.3.csv)

.

. pause "next"

.

. // diagnostics/assessment

. lfit

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

number of observations = 22446

number of covariate patterns = 22443

Pearson chi2(22361) = 56784.67

Prob > chi2 = 0.0000

.

. pause "next"

.

. linktest

Iteration 0: log likelihood = -14870.61

Iteration 1: log likelihood = -10866.095

Iteration 2: log likelihood = -10503.932

Iteration 3: log likelihood = -10449.599

Iteration 4: log likelihood = -10448.189

Iteration 5: log likelihood = -10448.187

Iteration 6: log likelihood = -10448.187

Logistic regression Number of obs = 22,446

LR chi2(2) = 8844.85

Prob > chi2 = 0.0000

Log likelihood = -10448.187 Pseudo R2 = 0.2974

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

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

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

\_hat | .9769897 .015222 64.18 0.000 .9471551 1.006824

\_hatsq | .1175715 .0056424 20.84 0.000 .1065125 .1286304

\_cons | -.1457909 .0189068 -7.71 0.000 -.1828476 -.1087342

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

Note: 0 failures and 16 successes completely determined.

.

. pause "next"

.

. estat classification

Logistic model for dv\_indicator

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

Classified | D ~D | Total

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

+ | 12001 3044 | 15045

- | 1986 5415 | 7401

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

Total | 13987 8459 | 22446

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

True D defined as dv\_indicator != 0

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

Sensitivity Pr( +| D) 85.80%

Specificity Pr( -|~D) 64.01%

Positive predictive value Pr( D| +) 79.77%

Negative predictive value Pr(~D| -) 73.17%

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

False + rate for true ~D Pr( +|~D) 35.99%

False - rate for true D Pr( -| D) 14.20%

False + rate for classified + Pr(~D| +) 20.23%

False - rate for classified - Pr( D| -) 26.83%

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

Correctly classified 77.59%

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

.

. pause "next"

.

. predict bssv3\_yhat

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

(7843 missing values generated)

. gen bssv3\_res = dv\_indicator - bssv3\_yhat

(7,843 missing values generated)

.

. summ dv\_indicator bssv3\_yhat

Variable | Obs Mean Std. Dev. Min Max

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

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

bssv3\_yhat | 22,446 .62314 .2792297 .0001701 .9999948

. /\*

> pause "next"

>

> scatter dv\_indicator bssv3\_yhat

>

> pause "next"

>

> scatter bssv3\_res dv\_indicator

>

> pause "next"

>

> scatter bssv3\_res bssv3\_yhat

> \*/

. pause "complete: B.SSV.3"

.