

Logistic Regression

Case Processing Summary

| Unweighted Cases ^a | | N | Percent |
|-------------------------------|----------------------|-----|---------|
| Selected Cases | Included in Analysis | 816 | 100.0 |
| | Missing Cases | 0 | .0 |
| | Total | 816 | 100.0 |
| Unselected Cases | | 0 | .0 |
| Total | | 816 | 100.0 |

a. If weight is in effect, see classification table for the total number of cases.

Dependent Variable Encoding

| Original Value | Internal Value |
|----------------|----------------|
| 0 | 0 |
| 1 | 1 |

Block 0: Beginning Block

Classification Table^{a,b}

| Observed | Predicted | | Percentage Correct |
|-----------------------------|----------------------|---|-----------------------|
| | fourth_downConverted | 0 | |
| Step 0 fourth_downConverted | 0 | 0 | 350 |
| | 1 | 0 | 466 |
| Overall Percentage | | | 57.1 |

a. Constant is included in the model.

b. The cut value is .500

Variables in the Equation

| | B | S.E. | Wald | df | Sig. | Exp(B) |
|-----------------|------|------|--------|----|-------|--------|
| Step 0 Constant | .286 | .071 | 16.378 | 1 | <.001 | 1.331 |

Variables not in the Equation

| | | Score | df | Sig. |
|--------|----------------------------|--------|----|-------|
| Step 0 | Variables | .378 | 1 | .539 |
| | week | .941 | 1 | .332 |
| | is_home_team | .300 | 1 | .584 |
| | is_postseason | 3.175 | 1 | .075 |
| | yardline_100 | 7.905 | 1 | .005 |
| | game_seconds_remaining | 1.054 | 1 | .304 |
| | goal_to_go | 78.369 | 1 | <.001 |
| | ydstogo | 4.440 | 1 | .035 |
| | posteam_timeouts_remaining | 2.278 | 1 | .131 |
| | score_differential | 9.212 | 1 | .002 |
| | div_game | .490 | 1 | .484 |
| | is_dome_game | .330 | 1 | .566 |
| | Net_DVOA | .159 | 1 | .690 |
| | Overall Statistics | 83.396 | 13 | <.001 |

Block 1: Method = Enter

Omnibus Tests of Model Coefficients

| | | Chi-square | df | Sig. |
|--------|-------|------------|----|-------|
| Step 1 | Step | 91.614 | 13 | <.001 |
| | Block | 91.614 | 13 | <.001 |
| | Model | 91.614 | 13 | <.001 |

Model Summary

| Step | -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
|------|-----------------------|----------------------|---------------------|
| 1 | 1023.056 ^a | .106 | .143 |

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

| Step | Chi-square | df | Sig. |
|------|------------|----|------|
| 1 | 5.526 | 8 | .700 |

Contingency Table for Hosmer and Lemeshow Test

| | Step 1 | fourth_downConverted = 0 | | fourth_downConverted = 1 | | Total |
|---|--------|--------------------------|----------|--------------------------|----------|-------|
| | | Observed | Expected | Observed | Expected | |
| 1 | 1 | 61 | 66.001 | 21 | 15.999 | 82 |
| | 2 | 53 | 49.648 | 29 | 32.352 | 82 |
| | 3 | 40 | 40.155 | 42 | 41.845 | 82 |
| | 4 | 39 | 34.851 | 43 | 47.149 | 82 |
| | 5 | 36 | 31.733 | 46 | 50.267 | 82 |
| | 6 | 30 | 29.186 | 52 | 52.814 | 82 |
| | 7 | 24 | 27.527 | 58 | 54.473 | 82 |
| | 8 | 25 | 25.903 | 57 | 56.097 | 82 |
| | 9 | 24 | 24.405 | 58 | 57.595 | 82 |
| | 10 | 18 | 20.591 | 60 | 57.409 | 78 |

Classification Table^a

| Observed | fourth_downConverted | Predicted | | Percentage Correct |
|--------------------|----------------------|-----------|-----|-----------------------|
| | | 0 | 1 | |
| Step 1 | fourth_downConverted | 0 | 130 | 220 |
| | | 1 | 60 | 406 |
| Overall Percentage | | | | 65.7 |

a. The cut value is .500

Variables in the Equation

| | B | S.E. | Wald | df | Sig. |
|----------------------------|-------|------|--------|----|-------|
| Step 1 ^a | | | | | |
| week | .003 | .015 | .050 | 1 | .823 |
| is_home_team | .122 | .152 | .643 | 1 | .423 |
| is_postseason | .259 | .360 | .518 | 1 | .472 |
| yardline_100 | .000 | .004 | .009 | 1 | .925 |
| game_seconds_remaining | .000 | .000 | .447 | 1 | .504 |
| goal_to_go | -.321 | .309 | 1.082 | 1 | .298 |
| ydstogo | -.199 | .027 | 52.614 | 1 | <.001 |
| posteam_timeouts_remaining | .013 | .091 | .022 | 1 | .883 |
| defteam_timeouts_remaining | -.068 | .102 | .452 | 1 | .501 |
| score_differential | .003 | .007 | .149 | 1 | .700 |
| div_game | .144 | .167 | .748 | 1 | .387 |
| is_dome_game | -.107 | .156 | .470 | 1 | .493 |
| Net_DVOA | .030 | .441 | .005 | 1 | .946 |
| Constant | 1.162 | .388 | 8.983 | 1 | .003 |

Variables in the Equation

| | Exp(B) |
|----------------------------|--------|
| Step 1 ^a | |
| week | 1.003 |
| is_home_team | 1.129 |
| is_postseason | 1.296 |
| yardline_100 | 1.000 |
| game_seconds_remaining | 1.000 |
| goal_to_go | .725 |
| ydstogo | .820 |
| posteam_timeouts_remaining | 1.013 |
| defteam_timeouts_remaining | .934 |
| score_differential | 1.003 |
| div_game | 1.155 |
| is_dome_game | .898 |
| Net_DVOA | 1.030 |
| Constant | 3.195 |

a. Variable(s) entered on step 1: week, is_home_team, is_postseason, yardline_100, game_seconds_remaining, goal_to_go, ydstogo, posteam_timeouts_remaining, defteam_timeouts_remaining, score_differential, div_game, is_dome_game, Net_DVOA.

Block 2: Method = Enter

Omnibus Tests of Model Coefficients

| | | Chi-square | df | Sig. |
|--------|-------|------------|----|-------|
| Step 1 | Step | 24.233 | 4 | <.001 |
| | Block | 24.233 | 4 | <.001 |
| | Model | 115.848 | 17 | <.001 |

Model Summary

| Step | -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
|------|----------------------|----------------------|---------------------|
| 1 | 998.822 ^a | .132 | .178 |

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Hosmer and Lemeshow Test

| Step | Chi-square | df | Sig. |
|------|------------|----|------|
| 1 | 8.049 | 8 | .429 |

Contingency Table for Hosmer and Lemeshow Test

| Step 1 | 1 | fourth_downConverted = 0 | | fourth_downConverted = 1 | | Total |
|--------|----|--------------------------|----------|--------------------------|----------|-------|
| | | Observed | Expected | Observed | Expected | |
| | 1 | 62 | 65.108 | 20 | 16.892 | 82 |
| | 2 | 57 | 50.811 | 25 | 31.189 | 82 |
| | 3 | 46 | 43.967 | 36 | 38.033 | 82 |
| | 4 | 37 | 39.886 | 45 | 42.114 | 82 |
| | 5 | 41 | 36.525 | 41 | 45.475 | 82 |
| | 6 | 24 | 31.858 | 58 | 50.142 | 82 |
| | 7 | 25 | 25.063 | 57 | 56.937 | 82 |
| | 8 | 22 | 22.367 | 60 | 59.633 | 82 |
| | 9 | 19 | 19.889 | 63 | 62.111 | 82 |
| | 10 | 17 | 14.526 | 61 | 63.474 | 78 |

Classification Table^a

| | Observed | Predicted | | Percentage Correct | |
|--------------------|----------------------|----------------------|-----|--------------------|------|
| | | fourth_downConverted | 0 | | |
| Step 1 | fourth_downConverted | 0 | 170 | 180 | 48.6 |
| | | 1 | 90 | 376 | 80.7 |
| Overall Percentage | | | | 66.9 | |

a. The cut value is .500

Variables in the Equation

| | B | S.E. | Wald | df | Sig. |
|----------------------------|-------|------|--------|----|-------|
| Step 1 ^a | | | | | |
| week | .012 | .015 | .619 | 1 | .432 |
| is_home_team | .102 | .155 | .432 | 1 | .511 |
| is_postseason | -.011 | .373 | .001 | 1 | .977 |
| yardline_100 | -.002 | .005 | .169 | 1 | .681 |
| game_seconds_remaining | .000 | .000 | .481 | 1 | .488 |
| goal_to_go | -.201 | .314 | .411 | 1 | .522 |
| ydstogo | -.159 | .029 | 31.265 | 1 | <.001 |
| posteam_timeouts_remaining | .001 | .092 | .000 | 1 | .988 |
| defteam_timeouts_remaining | -.051 | .103 | .242 | 1 | .623 |
| score_differential | .000 | .008 | .000 | 1 | .992 |
| div_game | .075 | .170 | .193 | 1 | .660 |
| is_dome_game | -.107 | .160 | .452 | 1 | .502 |
| Net_DVOA | .032 | .449 | .005 | 1 | .943 |
| is_pass | -.864 | .216 | 15.950 | 1 | <.001 |
| shotgun | .244 | .227 | 1.149 | 1 | .284 |
| no_huddle | .575 | .248 | 5.354 | 1 | .021 |
| is_outside | .042 | .161 | .069 | 1 | .793 |
| Constant | 1.273 | .424 | 9.001 | 1 | .003 |

Variables in the Equation

| | Exp(B) |
|----------------------------|--------|
| Step 1 ^a | |
| week | 1.012 |
| is_home_team | 1.107 |
| is_postseason | .989 |
| yardline_100 | .998 |
| game_seconds_remaining | 1.000 |
| goal_to_go | .818 |
| ydstogo | .853 |
| posteam_timeouts_remaining | 1.001 |
| defteam_timeouts_remaining | .951 |
| score_differential | 1.000 |
| div_game | 1.078 |
| is_dome_game | .898 |
| Net_DVOA | 1.033 |
| is_pass | .421 |
| shotgun | 1.276 |
| no_huddle | 1.777 |
| is_outside | 1.043 |
| Constant | 3.571 |

a. Variable(s) entered on step 1: is_pass, shotgun, no_huddle, is_outside.