

Logit model

Example 1

Regressing a dichotomous outcome against two categorical explanatory vars

Variables

suicide1 =suicide if incurable disease

sex = sex of respondent

hhrace = race of respondent

glimpse of the data

```
. sum suicide1 sex hhrace
```

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|-------------|-------|----------|-----------|-----|-----|
| -----+----- | | | | | |
| suicide1 | 1,828 | .6553611 | .4753804 | 0 | 1 |
| sex | 2,867 | 1.554935 | .4970596 | 1 | 2 |
| hhrace | 2,855 | 1.557618 | 1.157873 | 1 | 5 |

The model

```
. logit suicide1 i.sex i.hhrace, cformat(%9.2f) base
```

```
Iteration 0: log likelihood = -1172.2602
Iteration 1: log likelihood = -1140.3148
Iteration 2: log likelihood = -1140.1591
Iteration 3: log likelihood = -1140.1591
```

```
Logistic regression                               Number of obs   =
1,819                                             LR chi2(5)      =
64.20                                           Prob > chi2     =
0.0000                                          Pseudo R2      =
Log likelihood = -1140.1591                    0.0274
```

```
-----+-----
-----
          suicide1 |      Coef.   Std. Err.      z    P>|z|    [95% Conf.
Interval]
-----+-----
              sex |
              male |      0.00   (base)
              female |     -0.22    0.10    -2.14   0.033    -0.42
-0.02
              |
              hhrace |
              white |      0.00   (base)
```

```

            black |      -0.99      0.13     -7.44     0.000     -1.25
            -0.73
            amer indian |      0.13      0.60      0.22     0.823     -1.03
            1.30
asiatic, oriental |      0.31      0.39      0.80     0.425     -0.45
            1.07
            other, mixed |     -0.34      0.18     -1.90     0.057     -0.68
            0.01
            |
            _cons |      0.96      0.08     11.49     0.000      0.79
            1.12
-----
-----

```

Example 2

Regressing a dichotomous outcome against two categorical and one continuous explanatory vars

```
. logit suicide1 age i.sex i.hhrace, cformat(%9.2f) base nolog
```

```

Logistic regression              Number of obs      =
1,814
                                LR chi2(6)              =
74.96
                                Prob > chi2              =
0.0000
Log likelihood = -1132.0244      Pseudo R2          =
0.0320

```

```

-----
-----
suicide1 |      Coef.   Std. Err.      z    P>|z|    [95% Conf.
Interval]
-----+-----
-----
      age |      -0.01    0.00   -3.29   0.001    -0.01
-0.00
      |
      sex |
      male |      0.00 (base)
      female |     -0.21    0.10   -2.07   0.038    -0.41
-0.01
      |
      hhrace |
      white |      0.00 (base)
      black |     -1.03    0.13   -7.70   0.000    -1.29
-0.77
      amer indian |      0.13    0.60    0.22   0.824    -1.04
1.30
asiatic, oriental |      0.24    0.39    0.63   0.531    -0.52
1.00
      other, mixed |     -0.40    0.18   -2.25   0.025    -0.75
-0.05
      |
      _cons |      1.42    0.17    8.52   0.000    1.10
1.75
-----
-----

```

Example 3

Regressing a dichotomous outcome against two categorical vars including an interaction

```
. logit suicide1 age i.sex i.hrace sex##hrace, cformat(%9.2f) base nolog
```

```
Logistic regression               Number of obs   =  
1,814                               LR chi2(10)   =  
76.10                               Prob > chi2   =  
0.0000                               Pseudo R2    =  
Log likelihood = -1131.4496  
0.0325
```

```
-----  
-----  
              suicide1 |      Coef.   Std. Err.      z    P>|z|  
[95% Conf. Interval]-----+-----  
-----  
              age |      -0.01    0.00    -3.30   0.001  
-0.01    -0.00  
              |  
              sex |  
              male |      0.00 (base)  
              female |     -0.21    0.12    -1.72   0.085  
-0.45    0.03  
              |  
              hrace |  
              white |      0.00 (base)
```

```

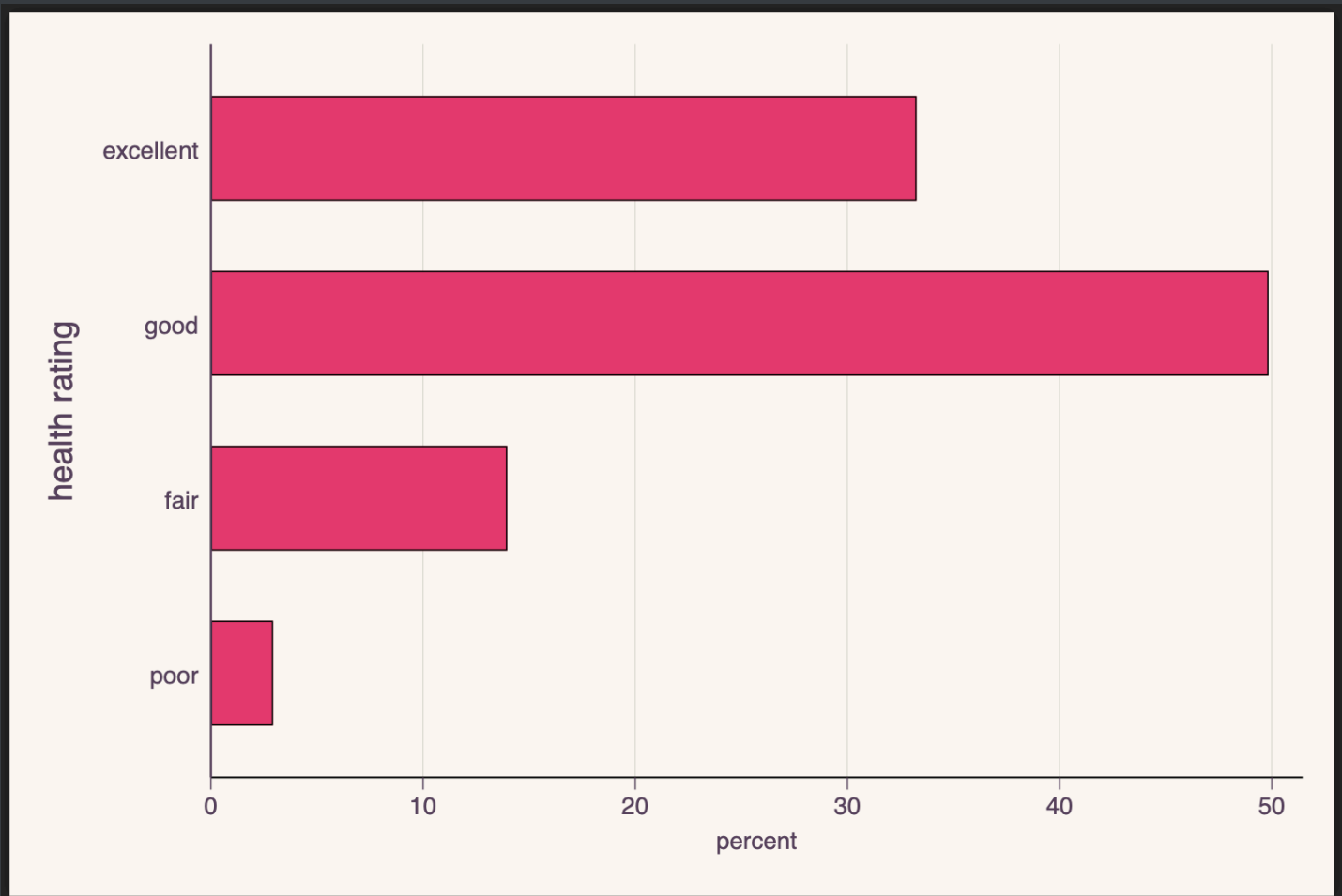
                black |         -1.02         0.21        -4.90         0.000
-1.42         -0.61
                amer indian |        -0.28         1.23        -0.23         0.821
-2.69         2.13
                asiatic, oriental |        -0.05         0.49        -0.10         0.923
-1.01         0.91
                other, mixed |        -0.32         0.28        -1.15         0.249
-0.87         0.22
                |
                sex#hhrace |
                female#black |        -0.03         0.27        -0.10         0.920
-0.56         0.50
                female#amer indian |         0.52         1.41         0.37         0.710
-2.24         3.28
                female#asiatic, oriental |         0.72         0.81         0.89         0.376
-0.87         2.31
                female#other, mixed |        -0.14         0.36        -0.39         0.697
-0.85         0.57
                |
                _cons |         1.42         0.17         8.29         0.000
1.09         1.76
-----
-----

```

Orderdered logit model

Regressing an ordered outcome against two categorical vars

outcome var is health rating



```
. ologit rhlthend age i.sex i.hrace sex##hrace, cformat(%9.2f) base  
nolog
```

Ordered logistic regression

Number of obs =

1,323

LR chi2(10) =

199.10

0.0000 Prob > chi2 =
 Log likelihood = -1345.101 Pseudo R2 =
 0.0689

```

-----
-----
                rhlthend |      Coef.   Std. Err.      z    P>|z|
[95% Conf. Interval]
-----+-----
-----
                age |      0.04     0.00    13.15   0.000
0.04      0.05
                |
                sex |
                male |      0.00 (base)
                female |      0.05     0.13     0.40   0.691
-0.20     0.30
                |
                hhrace |
                white |      0.00 (base)
                black |      0.43     0.22     1.91   0.057
-0.01     0.87
                amer indian |      1.65     0.99     1.67   0.096
-0.29     3.59
                asiatic, oriental |      -0.39     0.52    -0.75   0.452
-1.42     0.63
                other, mixed |      0.08     0.30     0.25   0.800
-0.51     0.66
                |
                sex#hhrace |
                female#black |      -0.04     0.29    -0.13   0.900
-0.61     0.53
  
```


Log likelihood = -1298.1031

Pseudo R2 =

0.0112

| racwork | RRR | Std. Err. | z | P> z | [95% Conf. Interval] |
|---------|-----|-----------|---|------|----------------------|
|---------|-----|-----------|---|------|----------------------|

-----+-----

| | | | | | |
|-----------|------|------|------|-------|------|
| all_white | | | | | |
| age | 1.02 | 0.01 | 3.48 | 0.001 | 1.01 |
| 1.03 | | | | | |

|

| | | | | | |
|--------|------|--------|------|-------|------|
| sex | | | | | |
| male | 1.00 | (base) | | | |
| female | 1.17 | 0.19 | 0.92 | 0.357 | 0.84 |
| 1.62 | | | | | |

|

| | | | | | |
|-------|------|------|-------|-------|------|
| _cons | 0.16 | 0.05 | -6.19 | 0.000 | 0.09 |
| 0.28 | | | | | |

-----+-----

| | | | | | |
|--------------|----------------|--|--|--|--|
| mostly_white | (base outcome) | | | | |
|--------------|----------------|--|--|--|--|

-----+-----

| | | | | | |
|--------------|------|------|-------|-------|------|
| half_white~k | | | | | |
| age | 1.00 | 0.01 | -0.05 | 0.963 | 0.99 |
| 1.01 | | | | | |

|

| | | | | | |
|--------|------|--------|------|-------|------|
| sex | | | | | |
| male | 1.00 | (base) | | | |
| female | 1.33 | 0.19 | 1.99 | 0.047 | 1.00 |
| 1.76 | | | | | |

