

```
. * Dependent variable has 3 categories denoted 1,2,3
. global ylist healthstatus
```

```
. global xlist age logincome numberdiseases
```

```
. describe $ylist $xlist
```

| variable name  | storage type | display format | value label | variable label                        |
|----------------|--------------|----------------|-------------|---------------------------------------|
| healthstatus   | float        | %9.0g          | hsvalue     | health status (fair, good, excellent) |
| age            | float        | %9.0g          |             | age                                   |
| logincome      | float        | %9.0g          |             | log of annual family income (in \$)   |
| numberdiseases | float        | %9.0g          |             | number of chronic diseases            |

```
. summarize $ylist $xlist
```

| Variable       | Obs  | Mean     | Std. Dev. | Min      | Max      |
|----------------|------|----------|-----------|----------|----------|
| healthstatus   | 5574 | 2.447435 | .659524   | 1        | 3        |
| age            | 5574 | 25.57613 | 16.73011  | .0253251 | 63.27515 |
| logincome      | 5574 | 8.696929 | 1.220592  | 0        | 10.28324 |
| numberdiseases | 5574 | 11.20526 | 6.788959  | 0        | 58.6     |

```
. tabulate $ylist
```

| health status (fair, good, excellent) | Freq. | Percent | Cum.   |
|---------------------------------------|-------|---------|--------|
| fair                                  | 523   | 9.38    | 9.38   |
| good                                  | 2,034 | 36.49   | 45.87  |
| excellent                             | 3,017 | 54.13   | 100.00 |
| Total                                 | 5,574 | 100.00  |        |

```
. * Ordered logit model
```

```
. ologit $ylist $xlist
```

```
Iteration 0: log likelihood = -5140.0463
Iteration 1: log likelihood = -4776.008
Iteration 2: log likelihood = -4769.8693
Iteration 3: log likelihood = -4769.8525
Iteration 4: log likelihood = -4769.8525
```

```
Ordered logistic regression          Number of obs   =      5574
                                   LR chi2(3)       =      740.39
                                   Prob > chi2      =      0.0000
                                   Pseudo R2        =      0.0720
```

| healthstatus   | Coef.     | Std. Err. | z      | P> z  | [95% Conf. Interval] |
|----------------|-----------|-----------|--------|-------|----------------------|
| age            | -.0292944 | .001681   | -17.43 | 0.000 | -.0325891 - .0259996 |
| logincome      | .2836537  | .0231098  | 12.27  | 0.000 | .2383593 .3289481    |
| numberdiseases | -.0549905 | .0040692  | -13.51 | 0.000 | -.0629661 - .047015  |
| /cut1          | -1.39598  | .2061301  |        |       | -1.799987 - .9919722 |
| /cut2          | .9513097  | .2054301  |        |       | .5486741 1.353945    |

```

. * Ordered logit marginal effects
. margins, dydx(*) atmeans predict(outcome(1))

```

```

Conditional marginal effects          Number of obs   =       5574
Model VCE      : OIM

```

```

Expression      : Pr(healthstatus==1), predict(outcome(1))
dy/dx w.r.t.   : age logincome numberdiseases
at              : age              = 25.57613 (mean)
                  logincome        =  8.696929 (mean)
                  numberdise~s     = 11.20526 (mean)

```

|                | dy/dx     | Delta-method<br>Std. Err. | z      | P> z  | [95% Conf. Interval] |           |
|----------------|-----------|---------------------------|--------|-------|----------------------|-----------|
| age            | .002058   | .0001333                  | 15.44  | 0.000 | .0017969             | .0023192  |
| logincome      | -.0199278 | .0017344                  | -11.49 | 0.000 | -.0233272            | -.0165284 |
| numberdiseases | .0038633  | .0003056                  | 12.64  | 0.000 | .0032643             | .0044623  |

```

. margins, dydx(*) atmeans predict(outcome(2))

```

```

Conditional marginal effects          Number of obs   =       5574
Model VCE      : OIM

```

```

Expression      : Pr(healthstatus==2), predict(outcome(2))
dy/dx w.r.t.   : age logincome numberdiseases
at              : age              = 25.57613 (mean)
                  logincome        =  8.696929 (mean)
                  numberdise~s     = 11.20526 (mean)

```

|                | dy/dx     | Delta-method<br>Std. Err. | z      | P> z  | [95% Conf. Interval] |           |
|----------------|-----------|---------------------------|--------|-------|----------------------|-----------|
| age            | .0052244  | .0003258                  | 16.04  | 0.000 | .0045859             | .0058629  |
| logincome      | -.0505872 | .0043054                  | -11.75 | 0.000 | -.0590256            | -.0421489 |
| numberdiseases | .0098071  | .000768                   | 12.77  | 0.000 | .0083018             | .0113124  |

```

. margins, dydx(*) atmeans predict(outcome(3))

```

```

Conditional marginal effects          Number of obs   =       5574
Model VCE      : OIM

```

```

Expression      : Pr(healthstatus==3), predict(outcome(3))
dy/dx w.r.t.   : age logincome numberdiseases
at              : age              = 25.57613 (mean)
                  logincome        =  8.696929 (mean)
                  numberdise~s     = 11.20526 (mean)

```

|                | dy/dx     | Delta-method<br>Std. Err. | z      | P> z  | [95% Conf. Interval] |           |
|----------------|-----------|---------------------------|--------|-------|----------------------|-----------|
| age            | -.0072824 | .0004179                  | -17.43 | 0.000 | -.0081014            | -.0064634 |
| logincome      | .070515   | .0057527                  | 12.26  | 0.000 | .05924               | .0817901  |
| numberdiseases | -.0136704 | .0010126                  | -13.50 | 0.000 | -.015655             | -.0116858 |

```
. * Ordered logit predicted probabilities
. predict p1ologit p2ologit p3ologit, pr
```

```
. summarize p1ologit p2ologit p3ologit
```

| Variable | Obs  | Mean     | Std. Dev. | Min      | Max      |
|----------|------|----------|-----------|----------|----------|
| p1ologit | 5574 | .0946903 | .0843148  | .0233629 | .859022  |
| p2ologit | 5574 | .3651672 | .0946158  | .1255265 | .5276064 |
| p3ologit | 5574 | .5401425 | .1640575  | .0154515 | .7999009 |

```
. tabulate $ylist
```

| health status (fair, good, excellent) | Freq. | Percent | Cum.   |
|---------------------------------------|-------|---------|--------|
| fair                                  | 523   | 9.38    | 9.38   |
| good                                  | 2,034 | 36.49   | 45.87  |
| excellent                             | 3,017 | 54.13   | 100.00 |
| Total                                 | 5,574 | 100.00  |        |

```
. * Ordered probit model coefficients
. oprobit $ylist $xlist
```

```
Iteration 0: log likelihood = -5140.0463
Iteration 1: log likelihood = -4771.7555
Iteration 2: log likelihood = -4771.0299
Iteration 3: log likelihood = -4771.0298
```

```
Ordered probit regression          Number of obs   =      5574
LR chi2(3)                        =      738.03
Prob > chi2                       =      0.0000
Pseudo R2                         =      0.0718

Log likelihood = -4771.0298
```

| healthstatus   | Coef.     | Std. Err. | z      | P> z  | [95% Conf. Interval] |
|----------------|-----------|-----------|--------|-------|----------------------|
| age            | -.0171681 | .0009898  | -17.34 | 0.000 | -.0191082 -.0152281  |
| logincome      | .1654079  | .01286    | 12.86  | 0.000 | .1402028 .190613     |
| numberdiseases | -.0315288 | .0023848  | -13.22 | 0.000 | -.0362029 -.0268548  |
| /cut1          | -.7945455 | .115108   |        |       | -1.020153 -.5689379  |
| /cut2          | .5459371  | .1148228  |        |       | .3208886 .7709857    |

```
. * Ordered probit model marginal effects
. margins, dydx(*) atmeans predict(outcome(1))
```

```
Conditional marginal effects      Number of obs   =      5574
Model VCE      : OIM
```

```
Expression   : Pr(healthstatus==1), predict(outcome(1))
dy/dx w.r.t. : age logincome numberdiseases
at           : age           = 25.57613 (mean)
              logincome     =  8.696929 (mean)
              numberdise~s  = 11.20526 (mean)
```

|                | dy/dx     | Delta-method Std. Err. | z      | P> z  | [95% Conf. Interval] |
|----------------|-----------|------------------------|--------|-------|----------------------|
| age            | .0024261  | .0001545               | 15.70  | 0.000 | .0021233 .002729     |
| logincome      | -.0233749 | .0019304               | -12.11 | 0.000 | -.0271584 -.0195914  |
| numberdiseases | .0044556  | .0003587               | 12.42  | 0.000 | .0037525 .0051586    |

```
. margins, dydx(*) atmeans predict(outcome(2))
```

```
Conditional marginal effects      Number of obs   =      5574
```

Model VCE : OIM

Expression : Pr(healthstatus==2), predict(outcome(2))
dy/dx w.r.t. : age logincome numberdiseases
at : age = 25.57613 (mean)
logincome = 8.696929 (mean)
numberdise~s = 11.20526 (mean)

Table with 7 columns: variable, dy/dx, Delta-method Std. Err., z, P>|z|, [95% Conf. Interval]. Rows for age, logincome, numberdiseases.

. margins, dydx(\*) atmeans predict(outcome(3))

Conditional marginal effects Number of obs = 5574
Model VCE : OIM

Expression : Pr(healthstatus==3), predict(outcome(3))
dy/dx w.r.t. : age logincome numberdiseases
at : age = 25.57613 (mean)
logincome = 8.696929 (mean)
numberdise~s = 11.20526 (mean)

Table with 7 columns: variable, dy/dx, Delta-method Std. Err., z, P>|z|, [95% Conf. Interval]. Rows for age, logincome, numberdiseases.

. \* Ordered probit model predicted probabilities
. predict p1oprobit, pr outcome(1)
. predict p2oprobit, pr outcome(2)
. predict p3oprobit, pr outcome(3)
. summarize p1oprobit p2oprobit p3oprobit

Table with 6 columns: Variable, Obs, Mean, Std. Dev., Min, Max. Rows for p1oprobit, p2oprobit, p3oprobit.

. tabulate \$ylist

Table with 4 columns: health status (fair, good, excellent), Freq., Percent, Cum. Rows for fair, good, excellent, Total.

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