```
      name:  <unnamed>
       log:  /Users/aaronmarkiewitz/Documents/research/stata/econ_6
> 72/card_hw.smcl
  log type:  smcl
 opened on:   6 Feb 2018, 10:39:27

1 . bcuse card

Contains data from http://fmwww.bc.edu/ec-p/data/wooldridge/card.dt
> a
  obs:         3,010
 vars:            34                          26 Jan 2000 12:16
 size:       409,360
```

variable name	storage type	display format	value label	variable label
id	float	%9.0g		
nearc2	float	%9.0g		
nearc4	float	%9.0g		
educ	float	%9.0g		
age	float	%9.0g		
fatheduc	float	%9.0g		
motheduc	float	%9.0g		
weight	float	%9.0g		
momdad14	float	%9.0g		
sinmom14	float	%9.0g		
step14	float	%9.0g		
reg661	float	%9.0g		
reg662	float	%9.0g		
reg663	float	%9.0g		
reg664	float	%9.0g		
reg665	float	%9.0g		
reg666	float	%9.0g		
reg667	float	%9.0g		
reg668	float	%9.0g		
reg669	float	%9.0g		
south66	float	%9.0g		
black	float	%9.0g		
smsa	float	%9.0g		
south	float	%9.0g		
smsa66	float	%9.0g		
wage	float	%9.0g		
enroll	float	%9.0g		
KWW	float	%9.0g		
IQ	float	%9.0g		
married	float	%9.0g		
libcrd14	float	%9.0g		

```
exper           float   %9.0g
lwage           float   %9.0g
expersq         float   %9.0g
-------------------------------------------------------------------------------
Sorted by:

2 .
3 . *a
4 . gen lnwage=ln(wage)

5 . gen exper_sq = exper^2

6 . reg lnwage educ exper exper_sq  black south smsa reg661-reg668 sm
  > sa66

      Source |       SS       df       MS              Number of ob
  > s =    3010
-------------+------------------------------           F( 15,  2994
  > ) =   85.48
       Model |  177.695591    15  11.8463727           Prob > F
  >    =  0.0000
    Residual |  414.946054  2994  .138592536           R-squared
  >    =  0.2998
-------------+------------------------------           Adj R-square
  > d =  0.2963
       Total |  592.641645  3009  .196956346           Root MSE
  >    =  .37228

------------------------------------------------------------------------------
  > -------------
      lnwage |      Coef.   Std. Err.      t    P>|t|     [95% Conf
  > . Interval]
-------------+----------------------------------------------------------------
  > -------------
        educ |   .0746933   .0034983    21.35   0.000     .0678339
  >    .0815527
       exper |    .084832   .0066242    12.81   0.000     .0718435
  >    .0978205
    exper_sq |   -.002287   .0003166    -7.22   0.000    -.0029079
  >   -.0016662
       black |  -.1990123   .0182483   -10.91   0.000    -.2347927
  >   -.1632318
       south |   -.147955   .0259799    -5.69   0.000    -.1988952
  >   -.0970148
        smsa |   .1363845   .0201005     6.79   0.000     .0969724
  >    .1757967
      reg661 |  -.1185698   .0388301    -3.05   0.002     -.194706
  >   -.0424335
      reg662 |  -.0222026   .0282575    -0.79   0.432    -.0776088
```

```
>    .0332036
      reg663 |   .0259703   .0273644     0.95   0.343    -.0276846
>    .0796251
      reg664 |  -.0634942   .0356803    -1.78   0.075    -.1334546
>    .0064662
      reg665 |   .0094551   .0361174     0.26   0.794    -.0613623
>    .0802725
      reg666 |   .0219476   .0400984     0.55   0.584    -.0566755
>    .1005708
      reg667 |  -.0005887   .0393793    -0.01   0.988     -.077802
>    .0766245
      reg668 |  -.1750058   .0463394    -3.78   0.000     -.265866
>   -.0841456
      smsa66 |   .0262417   .0194477     1.35   0.177    -.0118905
>    .0643739
       _cons |   4.739377   .0715282    66.26   0.000     4.599127
>    4.879626
-------------+----------------------------------------------------------------
> ------------

7 . *b
8 . reg educ exper exper_sq  black south smsa reg661-reg668 smsa66 ne
> arc4

      Source |       SS       df       MS              Number of ob
> s =    3010
-------------+------------------------------           F( 15,  2994
> ) =  182.13
       Model |  10287.6179    15  685.841194           Prob > F
>   =  0.0000
    Residual |  11274.4622  2994  3.76568542           R-squared
>   =  0.4771
-------------+------------------------------           Adj R-square
> d =  0.4745
       Total |  21562.0801  3009  7.16586243           Root MSE
>   =  1.9405

-------------+----------------------------------------------------------------
> ------------
        educ |      Coef.   Std. Err.      t    P>|t|     [95% Conf
> . Interval]
-------------+----------------------------------------------------------------
> ------------
       exper |  -.4125334   .0336996   -12.24   0.000    -.4786101
>   -.3464566
     exper_sq |   .0008686   .0016504     0.53   0.599    -.0023674
>    .0041046
       black |  -.9355287   .0937348    -9.98   0.000     -1.11932
>   -.7517377
```

```
       south |  -.0516126   .1354284    -0.38   0.703    -.3171548
>    .2139296
        smsa |   .4021825   .1048112     3.84   0.000     .1966732
>    .6076918
       reg661 |   -.210271   .2024568    -1.04   0.299    -.6072395
>    .1866975
       reg662 |  -.2889073   .1473395    -1.96   0.050    -.5778042
>   -.0000105
       reg663 |  -.2382099   .1426357    -1.67   0.095    -.5178838
>    .0414639
       reg664 |   -.093089   .1859827    -0.50   0.617    -.4577559
>    .2715779
       reg665 |  -.4828875   .1881872    -2.57   0.010    -.8518767
>   -.1138982
       reg666 |  -.5130857   .2096352    -2.45   0.014    -.9241293
>   -.1020421
       reg667 |  -.4270887   .2056208    -2.08   0.038    -.8302611
>   -.0239163
       reg668 |   .3136204   .2416739     1.30   0.194    -.1602434
>    .7874841
       smsa66 |   .0254805   .1057692     0.24   0.810    -.1819071
>    .2328682
       nearc4 |   .3198989   .0878638     3.64   0.000     .1476194
>    .4921785
        _cons |   16.84852   .2111222    79.80   0.000     16.43456
>    17.26248
------------------------------------------------------------------------------
> ------------

 9 . *c
10 . ivregress 2sls lnwage exper exper_sq  black south smsa reg661-reg
> 668 smsa66 ///
> (educ = exper exper_sq  black south smsa reg661-reg668 smsa66 nea
> rc4)

Instrumental variables (2SLS) regression              Number of ob
> s
>   =    3010
                                                      Wald chi2(15
> )
>   =  769.20
                                                      Prob > chi2
>   =  0.0000
                                                      R-squared
>   =  0.2382
                                                      Root MSE
>   =   .3873
```

```
------------------------------------------------------------------------------
> ------------
      lnwage |      Coef.   Std. Err.      z    P>|z|     [95% Conf
> . Interval]
-------------+----------------------------------------------------------------
> ------------
        educ |   .1315038   .0548174     2.40   0.016     .0240637
>     .238944
       exper |   .1082711   .0235956     4.59   0.000     .0620246
>    .1545176
    exper_sq |  -.0023349   .0003326    -7.02   0.000    -.0029868
>    -.001683
       black |  -.1467757   .0537564    -2.73   0.006    -.2521364
>   -.0414151
       south |  -.1446715    .027212    -5.32   0.000    -.1980061
>   -.0913369
        smsa |   .1118083   .0315777     3.54   0.000     .0499171
>    .1736995
       reg661 |  -.1078142   .0417024    -2.59   0.010    -.1895494
>    -.026079
       reg662 |  -.0070465   .0328197    -0.21   0.830    -.0713719
>     .057279
       reg663 |   .0404445    .031696     1.28   0.202    -.0216784
>    .1025675
       reg664 |  -.0579172   .0375058    -1.54   0.123    -.1314272
>    .0155929
       reg665 |   .0384577   .0468138     0.82   0.411    -.0532956
>     .130211
       reg666 |   .0550887   .0525196     1.05   0.294    -.0478478
>    .1580252
       reg667 |    .026758   .0486988     0.55   0.583    -.0686898
>    .1222058
       reg668 |  -.1908912   .0505764    -3.77   0.000    -.2900191
>   -.0917634
       smsa66 |   .0185311   .0215511     0.86   0.390    -.0237082
>    .0607704
        _cons |   3.773965   .9324588     4.05   0.000     1.946379
>    5.601551
------------------------------------------------------------------------------
> ------------
Instrumented:  educ
Instruments:   exper exper_sq black south
               smsa reg661 reg662 reg663
               reg664 reg665 reg666 reg667
               reg668 smsa66 nearc4
```

```
11 . *d
12 . reg educ nearc2

      Source |       SS       df       MS              Number of ob
> s =    3010
-------------+------------------------------           F(  1,  3008
> ) =    6.76
       Model |  48.3446646     1  48.3446646           Prob > F
>   =  0.0094
    Residual |  21513.7354  3008  7.15217267           R-squared
>   =  0.0022
-------------+------------------------------           Adj R-square
> d =  0.0019
       Total |  21562.0801  3009  7.16586243           Root MSE
>   =  2.6744

------------------------------------------------------------------------
> ------------
        educ |      Coef.   Std. Err.      t    P>|t|     [95% Conf
> . Interval]
-------------+----------------------------------------------------------
> ------------
      nearc2 |   .2552584   .0981804     2.60   0.009     .0627509
>    .4477659
       _cons |   13.15092   .0651894   201.73   0.000      13.0231
>    13.27874
------------------------------------------------------------------------
> ------------

13 . reg educ nearc4

      Source |       SS       df       MS              Number of ob
> s =    3010
-------------+------------------------------           F(  1,  3008
> ) =   63.91
       Model |  448.604204     1  448.604204           Prob > F
>   =  0.0000
    Residual |  21113.4759  3008  7.01910767           R-squared
>   =  0.0208
-------------+------------------------------           Adj R-square
> d =  0.0205
       Total |  21562.0801  3009  7.16586243           Root MSE
>   =  2.6494
```

```
------------------------------------------------------------------------------
> ------------
        educ |      Coef.   Std. Err.      t    P>|t|     [95% Conf
> . Interval]
-------------+----------------------------------------------------------------
> ------------
       nearc4 |    .829019   .1036988     7.99   0.000     .6256912
>     1.032347
       _cons |   12.69801   .0856416   148.27   0.000     12.53009
>     12.86594
------------------------------------------------------------------------------
> ------------

14 . ivregress 2sls lnwage exper exper_sq  black south smsa reg661-reg
> 668 smsa66 ///
> (educ = exper exper_sq  black south smsa reg661-reg668 smsa66 nea
> rc2 nearc4)

Instrumental variables (2SLS) regression               Number of ob
> s
>   =    3010
                                                       Wald chi2(15
> )
>   =  709.89
                                                       Prob > chi2
>   =  0.0000
                                                       R-squared
>   =  0.1702
                                                       Root MSE
>   =   .4042

------------------------------------------------------------------------------
> ------------
       lnwage |      Coef.   Std. Err.      z    P>|z|     [95% Conf
> . Interval]
-------------+----------------------------------------------------------------
> ------------
        educ |   .1570594   .0524383     3.00   0.003     .0542822
>    .2598366
       exper |   .1188149   .0227454     5.22   0.000     .0742348
>     .163395
     exper_sq |  -.0023565   .0003466    -6.80   0.000    -.0030358
>   -.0016772
       black |  -.1232778   .0520112    -2.37   0.018     -.225218
>   -.0213376
       south |  -.1431945   .0283691    -5.05   0.000    -.1987968
>   -.0875921
        smsa |    .100753   .0314355     3.21   0.001     .0391406
>    .1623654
```

```
      reg661 |   -.102976   .0433068    -2.38   0.017    -.1878558
>   -.0180962
      reg662 |  -.0002286   .0337043    -0.01   0.995    -.0662879
>    .0658306
      reg663 |   .0469556   .0325621     1.44   0.149     -.016865
>    .1107763
      reg664 |  -.0554084   .0390786    -1.42   0.156     -.132001
>    .0211842
      reg665 |   .0515041   .0474412     1.09   0.278    -.0414789
>    .1444872
      reg666 |   .0699968   .0531631     1.32   0.188    -.0342009
>    .1741945
      reg667 |   .0390596   .0496175     0.79   0.431    -.0581889
>     .136308
      reg668 |  -.1980371   .0523952    -3.78   0.000    -.3007297
>   -.0953444
      smsa66 |   .0150626   .0222765     0.68   0.499    -.0285986
>    .0587238
       _cons |   3.339687   .8921571     3.74   0.000     1.591091
>    5.088283
-------------+----------------------------------------------------------------

> ----------
Instrumented:  educ
Instruments:   exper exper_sq black south
               smsa reg661 reg662 reg663
               reg664 reg665 reg666 reg667
               reg668 smsa66 nearc2 nearc4

15 . *e
16 . reg IQ nearc4

      Source |       SS       df       MS              Number of ob
> s =    2061
-------------+------------------------------           F(  1,  2059
> ) =   12.13
       Model |  2869.62905     1  2869.62905           Prob > F
>   =  0.0005
    Residual |  487188.423  2059  236.614096           R-squared
>   =  0.0059
-------------+------------------------------           Adj R-square
> d =  0.0054
       Total |  490058.052  2060  237.892258           Root MSE
>   =  15.382
```

```
------------------------------------------------------------------------------
> ------------
          IQ |      Coef.   Std. Err.      t    P>|t|     [95% Conf
> . Interval]
-------------+----------------------------------------------------------------
> ------------
      nearc4 |      2.5962   .7454966     3.48   0.001     1.134195
>     4.058206
       _cons |    100.6106   .6274557   160.35   0.000     99.38014
>     101.8412
------------------------------------------------------------------------------
> ------------

17 . *f
18 . reg IQ nearc4 smsa66 reg661 reg662 reg669

      Source |       SS       df       MS              Number of ob
> s =    2061
-------------+------------------------------           F(  5, 2055
> ) =   12.79
       Model |  14792.5727     5  2958.51453           Prob > F
>    =  0.0000
    Residual |   475265.48  2055   231.27274           R-squared
>    =  0.0302
-------------+------------------------------           Adj R-square
> d =  0.0278
       Total |  490058.052  2060  237.892258           Root MSE
>    =  15.208

------------------------------------------------------------------------------
> ------------
          IQ |      Coef.   Std. Err.      t    P>|t|     [95% Conf
> . Interval]
-------------+----------------------------------------------------------------
> ------------
      nearc4 |   .8680808   .8216913     1.06   0.291    -.7433537
>     2.479515
      smsa66 |   1.354527   .8027961     1.69   0.092    -.2198514
>     2.928906
      reg661 |   4.768099   1.546809     3.08   0.002     1.734623
>     7.801576
      reg662 |    5.80812   .9017539     6.44   0.000     4.039673
>     7.576566
      reg669 |   1.844655   1.151703     1.60   0.109    -.4139709
>     4.103281
       _cons |   99.38472   .7016631   141.64   0.000     98.00868
>     100.7608
------------------------------------------------------------------------------
> ------------
```

```
19 . log close
      name:  <unnamed>
       log:  /Users/aaronmarkiewitz/Documents/research/stata/econ_6
> 72/card_hw.smcl
  log type:  smcl
 closed on:   6 Feb 2018, 10:39:27
-------------------------------------------------------------------------------
```