Hypothesis testing about a parameter of the population regression

1. Wage equation

Data source: Current Population Survey 2006. wage is average hourly earnings (in $)

```
. reg lwage educ exper female nonwhite;

      Source |       SS       df       MS              Number of obs =    2000
-------------+------------------------------           F(  4,  1995) =  186.03
       Model |  182.711923     4  45.6779807           Prob > F      =  0.0000
    Residual |  489.864945  1995  .245546338           R-squared     =  0.2717
-------------+------------------------------           Adj R-squared =  0.2702
       Total |  672.576867  1999  .336456662           Root MSE      =  .49553

------------------------------------------------------------------------------
       lwage |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        educ |   .1166997   .0053153    21.96   0.000     .1062756    .1271237
       exper |   .0108872   .0008691    12.53   0.000     .0091827    .0125917
      female |  -.2533177   .0222198   -11.40   0.000    -.2968942   -.2097412
    nonwhite |  -.0374311   .0311452    -1.20   0.230    -.0985117    .0236495
       _cons |   1.061903   .0759003    13.99   0.000     .9130514    1.210756
------------------------------------------------------------------------------
```

$$\widehat{\log(\text{wage})} = \underset{(.08)}{1.06} + \underset{(.005)}{.117\ \text{educ}} + \underset{(.0009)}{.011\ \text{exp}} - \underset{(.02)}{.25\ \text{female}} - \underset{(.031)}{.037\ \text{nonwhite}} \qquad R^2 = .27,\ n = 2000$$

2. Influence of school size on test score

Data source: MEAP93 in Wooldridge – 408 high schools in Michigan in 1993

Enroll: student enrollment in school
Totcomp: average annual teacher compensation (teacher quality)
Staff: number of staff per 1000 students (attention to students)
Math10: Percentage of students that received a passing score on standardized 10th grade test

$$\widehat{math10} = \underset{(6.113)}{2.274} + \underset{(.00010)}{.00046\ \text{totcomp}} + \underset{(.040)}{.048\ \text{staff}} - \underset{(.00022)}{.00020\ \text{enroll}} \qquad R^2 = .0541,\ n=408$$

$$\widehat{math10} = \underset{(48.7)}{-207.7} + \underset{(4.06)}{21.16\ \ln(\text{totcomp})} + \underset{(4.19)}{3.98\ \ln(\text{staff})} - \underset{(.69)}{1.29\ \ln(\text{enroll})} \qquad R^2 = .0654,\ n=408$$